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List of Acronyms

15 ABW	15th Air Base Wing, USAF
15 CES	15th Civil Engineer Squadron
15 CES/CEVC	15th Civil Engineer Squadron/Environmental Compliance Element
15 CES/CEVR	15th Civil Engineer Squadron/Environmental Restoration Element
611 CES	611th Civil Engineer Squadron
AAF	Army Airfield
AAFES	Army-Air Force Exchange Service
ABAL	Area Below Action Levels
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFRIMS	Air Force Restoration Information Management System
AFS	Air Force Station
Ag	Silver
AM	Aircraft Maintenance
AMC	Air Mobility Command
AM/PA	Aircraft Maintenance and Parking Areas
ANSC	Area of No Suspected Contamination
AOC	Area of Concern
ASR	Airport Surveillance Radar
AST	Aboveground Storage Tank
AVGAS	Aviation Gasoline
BGP	Base General Plan
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CES	Civil Engineer Squadron
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
CFR	Code of Federal Regulations
COC	Constituent, chemical, or contaminant of concern
COE	U.S. Army Corps of Engineers
CRP	Community Relations Plan
CWA	Clean Water Act
DERA	Defense Environmental Restoration Account (see ERA)
DERP	Defense Environmental Restoration Process
DoD	Department of Defense
DPG	Defense Planning Goal
DRMO	Defense Reutilization and Marketing Office
EBS	Environmental Baseline Survey
ECP	Environmental Condition of Property
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ERA	Environmental Restoration Account (formerly known as DERA)
ERPIMS	Environmental Restoration Program Information Management System, formerly IRPIMS

List of Acronyms

FAA	Federal Aviation Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FS	Feasibility Study
GIS	Geographic Information System
HAR	Hawaii Administrative Rules
HAZCOM	Hazard Communication
HDOH	State of Hawaii Department of Health
HEER	Hazard Evaluation and Emergency Response
HIA	Honolulu International Airport
HIANG	Hawaii Air National Guard
HPOL	Hickam Petroleum, Oils, and Lubricants
HQ	Headquarters
HRS	Hawaii Revised Statutes
HW	Hazardous Waste
IC	Institutional Control
IRA	Interim Removal or Remedial Action
IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program Information Management System, now ERPIMS
JP-4	Jet Propulsion Fuel Grade 4
LF	Landfill
LNAPL	Light Non-Aqueous-Phase Liquid
LOCID	Location Coordinate
LRIP	Last Remedy-in-Place
LTM	Long-Term Management (previously know as Long-Term Monitoring)
LTO	Long-Term Operation, currently known as Remedial Action - Operation or RA-O
MAC	Military Air Command
MAJCOM	Major Command (i.e. Pacific Air Forces)
MAP	Management Action Plan
MATS	Military Air Transport Service
MNA	Monitored Natural Attenuation
MOGAS	Motor Gasoline
MPX	Multiphase Extraction
MSC	Mission Support Computers
NAD	North American Datum
NASA	National Aeronautical and Space Administration
NCP	National Contingency Plan
NFA	No Further Action
NFADD	No Further Action Decision Document
NFRAP	No Further Response Action Planned
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List

List of Acronyms

OPS	Operating Properly and Successfully
OU	Operable Unit
PA	Preliminary Assessment
PACAF	Pacific Air Force
PACDIV	Naval Facilities Engineering Command, Pacific Division
PAH	Polycyclic or Polynuclear Aromatic Hydrocarbon
PA/SI	Preliminary Assessment/Site Inspection or Investigation
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oils, and Lubricants
PREE/CA	Preliminary Engineering Evaluation/Cost Analysis
PRG	Preliminary Remediation Goals
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RA	Remedial Action
RA-C	Remedial Action - Construction
RA-O	Remedial Action - Operation
RAB	Restoration Advisory Board
RAGS	Risk Assessment Guidance
RBCA	Risk-based Corrective Action
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-in-Place
RMP	Remediation Management Plan
RPM	Remedial Project Manager
RSC	Research Site
SACM	Superfund Accelerated Cleanup Model
SAP	Sampling and Analysis Plan
SC	Site Closeout
SI	Site Inspection or Investigation
SOP	Standard Operating Procedure
SVE	Soil Vapor Extraction
SVOC	Semivolatile Organic Compound
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
UIC	Underground Injection Control
USAF	U.S. Air Force
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1. INTRODUCTION

As a result of past (pre-1984) waste and resource management practices at Hickam Air Force Base (AFB), certain areas of the installation have been exposed to various organic and inorganic compounds generated by installation activities. In response, environmental restoration has been initiated under the Air Force Installation Restoration Program (IRP). The 15th Air Base Wing (15 ABW), 15th Civil Engineer Squadron Environmental Restoration Element (15 CES/CEVR), based at Hickam AFB, Hawaii, manages the IRP for 15 ABW Installations. Ongoing efforts to comply with applicable laws and regulations ensure that present waste and resource management practices are carried out in a manner that protects human health and the environment.

This Management Action Plan (MAP) summarizes the current status of the Hickam AFB environmental restoration effort. This MAP presents a comprehensive strategy for implementing cleanup response actions necessary to protect human health and the environment, and integrates other environmental compliance and environmental planning programs to support restoration of the Hickam AFB to acceptable levels of environmental quality. The MAP is a dynamic planning document to be updated regularly. The contents represent best estimates of required work and do not necessarily represent work currently approved by the U.S. Air Force (USAF) or state and federal regulatory agencies. Implementation of project work plans is dependent on funding availability. This MAP was prepared with information available as of November 2001.

The last Hickam MAP update was produced in December 2000. Significant changes from the last complete Hickam MAP include the following:

- No Further Response Action Planned (NFRAP) document signed by the State of Hawaii Department of Health (HDOH) and the Air Force for Site ST26 (Kuntz Pipeline).
- Achieved Remedy-in-Place (RIP) for Site OT02 (AEC Area) and Site LF14 (Inactive Landfill 2).
- Continued closure of fuel piping and underground storage tanks.
- Initiated Base-wide Polychlorinated Biphenyl (PCB) Preliminary Assessment/Site Inspection.
- Completed testing of bioslurping technology for application at Site SS11 (Fuel Leak Area 16 under the Air Mobility Command ramp) and initiated the design and construction phase of a full-scale bioslurper system.
- Continued interim remedial action at Site SS01 (Fuel Leak Areas 13 & 14) using multiphase extraction (MPX) technology.
- Scientists from Battelle Memorial Institute evaluated the use of the dual drop tube method for multiphase extraction. Battelle's work was funded by the Environmental Security Technology Certification Program (ESTCP), which is a Department of Defense (DoD)-wide program, set up to develop new technologies for environmental cleanup and pollution prevention. ESTCP is funded at the congressional level and funding was provided to Battelle through NAVFAC (Naval Facilities Engineering Service Center at Port Hueneme, CA).

- Continued the field evaluation of phytoremediation technology at John Rodgers Tank Farm (Site SS13).
- Conducted quarterly Restoration Advisory Board (RAB) meetings

The Hickam AFB MAP chapters cover the following topics:

- Chapter 1 describes IRP objectives and composition of the Project Team and RAB, and gives a brief summary of the physical setting and history of installation operations that caused contamination.
- Chapter 2 summarizes the environmental condition of the installation's property with emphasis on the adequacy of previous source discovery and assessment efforts and includes a depiction of current land use in the vicinity of the installation.
- Chapter 3 summarizes the status of the environmental restoration program for Hickam AFB, including information on all IRP sites, areas of concern, operable units, and community involvement effort.
- Chapter 4 describes the strategy for completing environmental restoration of the installation, including all projects for investigating and remediating contamination, and remedy selection and community involvement strategies.
- Chapter 5 provides a master schedule of planned activities for the environmental restoration program.
- Chapter 6 describes specific technical and/or administrative issues to be resolved and presents a strategy for resolving these issues.
- Chapter 7 contains the bibliography used to prepare this MAP.
- Appendices A through D present additional information on fiscal requirements, available technical and related documents, and site decision documents.

1.1 ENVIRONMENTAL RESTORATION PROGRAM OBJECTIVES

The overall objective of the Hickam AFB environmental restoration effort is to reduce, or eliminate when feasible, risks to human health and the environment from contamination resulting from USAF activities prior to 1984. This section presents the objectives of the Hickam AFB program.

The following are installation-specific objectives of the Hickam AFB environmental restoration program:

- Negotiate restoration agreements with the HDOH that are mutually beneficial to the USAF and the State of Hawaii.
- Maintain a Hickam AFB RAB to provide active community participation in the restoration program.

- Reduce risk to human health and the environment by initiating or continuing removal actions and other projects to remove or control contaminated soil, sediment, debris, and groundwater.
- Comply with federal, state, and local regulatory requirements and orders pertaining to the cleanup of the environment.
- Develop partnerships with environmental stakeholders to facilitate environmental cleanup.
- Involve federal, state, and local regulatory agencies; community members; and other concerned agencies and organizations when appropriate.
- Use new and innovative technologies to expedite the cleanup process and to lower costs.
- Enter into cleanup agreements and continue to comply with existing agreements; establish schedules that can be met within Air Force funding allocations.
- Prevent future contamination through pollution prevention and waste minimization practices.
- Consider current and anticipated future land use in developing cleanup strategies.
- Ensure that necessary actions are taken to protect human health and the environment prior to property sale or transfer from the USAF to others in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements and DoD policy.

1.2 MAP PURPOSE, UPDATES, AND DISTRIBUTION

This MAP summarizes the status of the Hickam AFB IRP and provides a comprehensive long-range strategy for implementing response actions necessary to protect human health and the environment. In addition, it defines the status of 15 CES/CEVR efforts to resolve technical issues so continued progress and implementation of scheduled activities can occur. The Project Team, a multi-disciplined team brought together for the environmental management of Hickam AFB, will use this MAP to direct and monitor environmental cleanup response actions and to schedule activities needed to resolve technical, administrative, and operational issues.

This MAP gives the status of the environmental restoration effort at Hickam AFB as of November 2001. It will be revised annually and distributed on an as-needed basis, typically when substantial changes occur within the program. This MAP will be distributed to HQ Pacific Air Force (PACAF), HDOH, and RAB members, and it will be maintained in the 15 CES/CEVR information repository for review by interested parties.

Contained in this document are past IRP activities at Hickam AFB, the current status of projects, and anticipated further work. This MAP can and should be used to aid the Project Team in determining the future direction of restoration work at Hickam AFB.

1.3 PROJECT TEAM AND RESTORATION ADVISORY BOARD

A Hickam AFB Project Team has been established and is led by the 15 CES/CEVR Chief. This team consists of core members and auxiliary members. Core members are those responsible for resolving technical issues and directing the IRP effort at Hickam AFB. Auxiliary members are personnel, who offer a range of technical, operational, regulatory, and administrative expertise or guidance to complete the objectives outlined in this plan. Names and phone numbers of the Project Team are presented in Table 1-1.

A RAB for Hickam AFB has been established. Table 1-2 lists current members of the Hickam RAB.

An organization chart showing the relationship of 15 CES/CEVR in context of 15 ABW is presented in Figure 1-1.

**Table 1-1
Project Team Members
Hickam Air Force Base**

Name	Title	Agency/ Firm	Phone Number	Role/Responsibility
Core Members				
Mr. Jim Tayon	Chief, Environmental Flight	15 CES/CEV	(808) 449-1584 x232	Environmental Program Oversight
Todd Lanning	Chief, Restoration	15 CES/CEVR	(808) 449-1584 x223	IRP Management
Mr. William Grannis	Hickam IRP Program Manager	15 CES/CEVR	(808) 449-1584 x230	Program Management
Mr. Mark Petersen	Hickam Remedial Project Manager	15 CES/CEVR	(808) 449-1584 x 236	Remedial Project Manager
Mr. Jeffery Klein	Hickam Remedial Project Manager	15 CES/CEVR	(808) 449-1584 x 225	Remedial Project Manager
Mr. Michael Patterson	Project Team Chief	AFCEE	(210) 536-1133	Contract Management & Technical Oversight
Auxiliary Members				
Mr. Mark Ingoglia	IRP Manager	HQ PACAF/ CEVR	(808) 449-9236	MAJCOM Oversight
Mr. Mike Nii	Chief, Environmental Compliance Element	15 CES/CEVC	(808) 449-1584 x238	Compliance Management
Mr. Gary O'Donnell	Chief, Environmental Planning Element	15 CES/CEVP	(808) 449-1584 x245	Planning Management
Capt Mark Alter	Chief, Base Comprehensive Planning	15 CES/CECP	(808) 448-0207	Develops Base General Plan
Ms. Jan Goo	Real Property Manager	15 CES/CERR	(808) 448-7835	Real Estate Transactions
Capt Christopher Thomas	USAF Attorney	15 ABW/JA	(808) 449-1737	Legal Review
Major Kurt Lee	Base Bioenvironmental Engineer	15 AMDS/SGPB	(808) 449-6814	Technical Review
Ms. Teresita Salire	Hazard Evaluation and Emergency Response (HEER) Staff Remedial Project Manager	Hawaii DOH, HEER	(808) 586-4256	Regulatory Oversight

Table 1-2
Restoration Advisory Board Members
Hickam Air Force Base

Name	Title	Affiliation
<i>Community Members</i>		
James Anderson	RAB member	Community Member
Kyle Kajihiro	RAB member	Community Member
Henry Curtis	RAB Community Co-Chair	Life of the Land
Kat Brady	RAB member	Community Member, Life of the Land
James Smith	RAB member	Community Member
<i>Agency Members</i>		
Mr. James Tayon, P.E.	RAB Military Co-Chair	15 CES/CEV, Chief
Ms. Teresita Salire	HEER Staff Remedial Project Manager	HDOH, HEER
Dr. Aly El-Kadi	Professor	University of Hawaii
Mr. John Naughton	Pacific Islands Environmental Coordinator	National Marine Fisheries Service
Ms. Laurie Sullivan	Coastal Resource Coordinator	National Oceanic and Atmospheric Administration
Mr. Don Palawski	Assistant Field Supervisor for Ecological Services	U.S. Fish & Wildlife Services
Mr. Gilbert Coloma-Agaran (or designee)	Director	Hawaii Department of Land & Natural Resources

Figure 1-1, 15th Air Base Wing Organization Chart (8.5x11)

1.4 PHYSICAL SETTING AND INSTALLATION HISTORY

Physical Setting. Hickam AFB is located on the south side of the island of Oahu, Hawaii, in the City and County of Honolulu (Figure 1-2). The Base is bounded on the east by the Honolulu International Airport (HIA), on the west by the Pearl Harbor Channel, on the south by the Pacific Ocean (Mamala Bay), and on the north by the Pearl Harbor Naval Reservation. In March 1993, the USAF acquired the adjacent Fort Kamehameha from the U.S. Army through an Interservice Transfer of Real Property. Fort Kamehameha comprises approximately 506 acres at the southern end of Hickam AFB. The total land area of Hickam AFB, including Fort Kamehameha and the Hawaii Air National Guard, is 2520.51 acres. This excludes the 329.628 acres of property including Runway 8L that was transferred to the State of Hawaii in September 2000.

Hickam AFB is located on the leeward side of the Koolau Range. The climate is equable and dry through the spring, summer, and fall months. In winter, there are occasional regional storms. Average annual rainfall at Hickam AFB is approximately 22.8 inches. The mean summer temperature is approximately 79°F and the mean winter temperature is approximately 72° F. Evaporation rates are high, approximately 80 to 86 inches annually, due to brisk trade winds and relatively high solar radiation. There are no natural drainage networks on the installation. However, three man-made canals (Manuwai Canal, Kumumauu Canal, and the Transportation Canal [also known as the Motor Pool Ditch]) and associated storm water drainage systems were constructed for site drainage. Two smaller canals also drain a portion of the Hawaii Air National Guard (HIANG) facilities.

Hickam AFB lies on an exposed coral platform forming a coastal plain. Elevations range from 0 to 20 feet above mean sea level. The coastal plain is the culmination of a succession of marine sedimentary and terrestrial alluvial layers that formed during subsidence of the island and fluctuating sea levels. The exposed reef represents a present-day lower sea level stand and contains a wedge of sediments known as caprock. This caprock contains strata of alluvium, lagoonal mud, beach sands, volcanic tuff, and corals. At depth, these strata overlay volcanic bedrock of the Honolulu volcanic series. In addition to these natural strata, many areas of Hickam contain dredge-fill material.

Hickam AFB's subsurface is caprock, which overlies and confines the local aquifer under artesian conditions. Groundwater beneath Hickam AFB is divided between two aquifer sectors, the Pearl Harbor and Honolulu Aquifer Sector. Groundwater within the Pearl Harbor and Honolulu Aquifer Sectors consists of upper sedimentary caprock aquifers that rest on primary basalt aquifers. The upper Pearl Harbor Aquifer Sector aquifer is a basal, unconfined, sedimentary aquifer that is currently used, ecologically important, irreplaceable, and highly vulnerable to contamination. Under that sedimentary caprock aquifer there is a basal, unconfined, flank aquifer that is currently used, ecologically important, irreplaceable, and moderately vulnerable to contamination. The Honolulu Aquifer Sector consists of an upper basal, unconfined, sedimentary aquifer that has potential use, is neither a drinking water source or ecologically important, is replaceable, and is highly vulnerable to contamination. The lower aquifer is a basal, unconfined, flank aquifer that is a currently used drinking water source and is irreplaceable with low vulnerability to contamination.

The many military and non-military activities at Hickam AFB, both past and present, have contributed to a complex installation history. The Base contains land uses that are military, industrial, administrative, commercial, residential, and recreational and are in close proximity. The installation layout and current land use are shown in Figure 1-3. Future land use plans are presented in Figure 1-4.

Figure 1-2, (8.5x11)

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Figure 1-3 (8.5x11)

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Figure 1-4 (8.5x11)

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History. In response to heightened world tension and the U.S. War Department's desire to establish a strong military presence in the Pacific, Hickam AFB was officially activated in 1938 as Hickam Army Air Field, incorporating the small and already operational Fort Kamehameha. The Base was heavily damaged by Japanese warplanes during the attack on Pearl Harbor on 7 December 1941.

After World War II, the Air Force in Hawaii consisted of the Air Transport Command and its successors, the Military Air Transport Service (MATS), Military Air Command (MAC), and Air Mobility Command (AMC) resources. The permanent Base population and mission have been relatively steady over time with major changes in the number of aircraft services, fuel usage, and transient population levels, all of which peaked during the Korean conflict and again during the Vietnam period. MATS drew its biggest assignment during the Korean conflict when its aircraft, augmented by chartered commercial aircraft and a Canadian air transport squadron, carried 559,000 passengers (including 62,000 air evacuation patients), 67,000 tons of cargo, and 30,050 tons of mail in 35,000 Pacific crossings via Hickam AFB.

Hickam AFB is now operated by 15 ABW, whose mission is to ensure world-class en route support (to aircraft and forces transiting the Pacific Ocean), maintain operationally ready forces, and provide superior customer service. In addition, 15 ABW supported the Apollo Astronauts in the 1960s and 1970s; the Prisoner of War Homecoming, Baby Lift, and New Life in the 1970s; the Eniwetok Atoll Radioactive Cleanup Operation from 1977 to 1980; National Aeronautical and Space Administration's space shuttle missions in the 1980s; and the Mount Pinatubo evacuation in 1991.

Base operations have consistently supported the movement of troops and materials from the mainland to the Far East. The types of aircraft operations flown from Hickam AFB are primarily military transport aircraft. These aircraft have typically been transient, that is, not assigned to Hickam AFB. In addition, the HIANG operates from Hickam AFB as part of the air defense mission of the Hawaiian Islands. The history of the installation has been summarized and presented in Table 1-3. Locations of known hazardous material activities associated with past installation operations are presented in Figure 1-5. Significant historical milestones and changes in the Petroleum, Oils, and Lubricants Distribution and Storage Systems on Fort Kamehameha and Hickam AFB are shown in a historical time line presented in Figure 1-6.

Land Use. The Hickam AFB Base General Plan (BGP), updated annually through the Base General Plan Annex, serves as a guide for facility infrastructure improvement planning. The plan considers constraints to land use, including those areas managed under the IRP. At present, land uses on the perimeter of Hickam AFB are Pearl Harbor Naval Reservation to the north, Pearl Harbor Channel to the west, and HIA to the east. The Pacific Ocean to the south. Bishop Point, which belongs to the U.S. Navy, is on the coast along the western boundary of Hickam AFB. Up until September 2000, Runway 8L-26R comprised much of the eastern portion of Hickam AFB and was jointly used by the USAF and the State of Hawaii. The Runway and associated taxiways have been formally transferred to the State of Hawaii as of Sept 14, 2000. It serves military, commercial, and general aviation aircraft. Its most prevalent use is for commercial airliners operating out of HIA.

Categories of land use at Hickam AFB, outlined in the BGP, are as follows.

- Airfield/Aircraft Operations and Maintenance: active and inactive runways, taxiways, parking aprons, and areas for maintenance and operations of aircraft. These areas

comprise the central portion of Hickam AFB and are partially contiguous with the runways and facilities of HIA.

- Light Industrial: storage of supplies and maintenance of installation facilities, vehicles, and utilities. Industrial services areas are located throughout Hickam AFB, but generally surround the airfield and mission areas in the central portion.
- Administrative: buildings that house administrative functions. Administrative areas are located in the northwest portion of Hickam AFB, bordering housing areas and airfield and mission areas.
- Housing/Medical/Community: accommodations for families, unaccompanied and transient personnel, and visitors. Community facilities include shopping, medical, dental and other social support needs of military families. These areas are located in the northern portion of Hickam AFB adjacent to HIA and Pearl Harbor Naval Reservation.
- Outdoor Recreation/Open Space: areas for camping, boating, golf, and other recreational activities. Open space includes green areas between Base facilities as well as environmentally sensitive areas near the beaches protected for ecological, cultural, or other reasons. A wide stretch of open space (two miles long and one-half mile wide) exists along the shores of Mamala Bay on the southern portion of Hickam AFB. Other large expanses of open space exist in and near the housing and community areas.

Table 1-3
History of Installation Operations
Hickam Air Force Base

Period	Types Of Operations	Weapon Systems and Related Activities	Hazardous Substance Activities
pre-1800s	Natural habitat	Not applicable	Not applicable
1800s-1938	Agriculture	Not applicable	Not applicable
1907-unknown	Fort Kamehameha – Battery emplacements	Not applicable	Underground storage tanks (USTs), possible small arms range
1917-present	Fort Kamehameha – Military housing and support	Not applicable	Motor Pools, photo labs, USTs
1921-unknown	Fort Kamehameha – Railway established	Not applicable	Unknown
1938-1945	Hickam Air Depot – Air Defense: ferrying troops and supplies, staging of war planes and troops during World War II	Flight training, weapons storage for troops and planes, air and coastal defense batteries.	Fire protection training, landfill (solvents, sludges, lubricants), maintenance and repair (solvents, oils, degreasers, engine shops, painting, weapons storage, fuel/oil storage, distribution)
1945-present	Hickam AFB – Air Defense: ferrying troops and supplies, staging troops during Korean and Vietnam conflicts, ATS/MAC/AMC support (passengers and cargo), support to National Aeronautical and Space Administration (NASA) manned space flights	Warplane training, weapons storage for troops and planes.	Fire protection training, landfill (pesticides, solvents, sludges, lubricants), maintenance and repair (solvents, oils, degreasers, plane engine shops, corrosion control), weapons storage, fuel leaks, petroleum, oils, and lubricants (POL) fueling facilities

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2. CONDITION OF PROPERTY

This chapter summarizes the environmental condition of Hickam AFB with emphasis on the identification of previous source discovery and assessment efforts. This chapter also discusses existing and proposed land uses of the Base.

2.1 SOURCE DISCOVERY AND ASSESSMENT STATUS

2.1.1 Initial Discoveries/Records Search and Preliminary Assessment/Site Inspections

The Installation Restoration Program formally began at Hickam AFB in 1983 with funding through Headquarters Pacific Air Force for a Phase I Records Search. Major findings of the Records Search included the identification of 17 sites potentially contaminated with hazardous materials. These sites principally were fuel leaks from pipelines and underground storage tanks (USTs), landfills, and storm drainage systems.

The Phase I Records Search report recommended that three sites be further characterized: two previous landfill sites (LF01 and LF05) and a former fire training area (FT07). Initial site characterization of chemicals present at these sites was conducted in Phase II, Stage 1 and Stage 2 investigations, which included drilling of soil borings, installation of groundwater monitoring wells, and sampling and analysis at all three sites. The three sites were further characterized beginning in 1991, under a Phase II, Stage 3 Remedial Investigation. Data obtained in Stage 1, Stage 2, and Stage 3 reports consistently support the conclusion that low levels of contaminants exist in soil, subsurface soil, and groundwater beneath the sites, but risks to human health and the environment are not significant. A NFRAP was finalized for Site FT07 in 1999. However, the Base Remedial Project Manager (RPM) and State Dept of Health consider additional characterization of contents of the two landfills necessary. LF05 is situated under the Mamala Bay Golf Course on Fort Kamehameha. An Engineering Evaluation/Cost Analysis (EE/CA) work plan was developed using funding provided by the U.S. Army in FY98. Passive soil gas was employed throughout the landfill to assist in developing a sampling and analysis plan. In FY00, the USAF provided funds to further characterize LF05 and prepare the appropriate documentation based on the data. A project is currently underway to collect additional data and prepare an EE/CA for Site LF05.

In 1983, a report entitled *Subsurface Fuel Detection Investigation, Hickam AFB* (Ernest K. Hirata) was prepared to document an investigation for the presence of petroleum products in the groundwater at multiple locations on Hickam AFB (this study was conducted prior to classification of IRP sites). Forty observation holes were constructed. Results of the investigation indicated that 21 of the observation holes had detectable petroleum products, although only seven holes had fuel of sufficient thickness to recover free product. The data were used to designate IRP spill site locations in early 1991. Sites identified by this method included SS06, SS08, SS09, SS10, SS11, and SS12. Sites SS01, SS13, and SS15 had been identified as fuel spill sites prior to implementation of the IRP in the 1970s.

An important administrative change in the IRP occurred in 1990 when management of the environmental restoration effort at Hickam AFB was transferred from PACAF to the 15th Civil Engineer Squadron, Environmental Restoration Element (15 CES/CEVR), both located at Hickam AFB. Since 1990, 15 CES/CEVR has managed Environmental Restoration Account (ERA) projects with funding provided through HQ PACAF. (ERA projects are

limited to the investigation and cleanup of contamination resulting from releases prior to 1984.)

In November 1996, a comprehensive Preliminary Assessment/Site Inspection (PA/SI) was initiated for all 15 ABW installations, including Hickam AFB. The purpose of this study was to identify any new Areas of Concern (AOCs) and to develop a baseline of environmental data for both the AOCs and existing sites to support subsequent site characterization and cleanup activities. Preliminary Assessment activities undertaken to identify AOCs and further characterize both AOCs and IRP sites included the following:

- Comprehensive literature search
- Interviews of current and former employees
- Aerial photograph review
- Interaction and communication with other groups within 15 ABW
- Site reconnaissance at Hickam AFB

During the PA phase of the investigation, 72 AOCs were identified. AOCs and the majority of sites throughout 15 ABW installations were evaluated using risk-based prioritization (EA Engineering Science and Technology, May 1995). Since funds were limited at the time for collection of chemical and geophysical data at the sites and AOCs, the prioritization was used to evaluate those areas posing the greatest potential risk and use funds to characterize those sites. Thirty-six sites and AOCs on Hickam AFB were sampled. The PA/SI report (EA Engineering Science and Technology, November 1996) documents the findings of both the PA and SI phases of the investigation. Some AOCs were deferred to the compliance program based on Defense Environmental Restoration Account (DERA) eligibility and others were combined with existing IRP sites for management purposes.

Two Phase I Environmental Baseline Surveys (EBSs), one in August 1994 and one in February 1996, were conducted for a proposed land transfer of Runway 8L-26R. The EBS reports identified several potential sources and sites, including: buildings containing asbestos materials; PCB devices in substations; buildings that may have stored hazardous wastes; subsurface fuel releases; and nuclear testing activities. ERA-eligible sites and AOCs were assessed under the Runway 8L EE/CA project.

Site Inspection work for AOCs and one site (Site LF17) lacking chemical data was initiated with FY96 funds. The AOCs included in the SI investigation and documented in the Oct 1999 report were EA03, EA04, EA10, EA15, EA39, EA51, EA56, EA59, EA68, and EA81. During the SI investigation, Aircraft Maintenance (AM) areas were identified as a new AOC. The new AM AOC included 10 subareas (AM2c, d, e, f; AM03; AM05; AM06; AM08; AM10; and AM14) that were identified from historic aerial photos as areas of heavy staining or aircraft maintenance use. Limited characterization was also performed for an additional AOC (potential fire training area adjacent to Site OT02) that was identified by the State of Hawaii Department of Health from an aerial photo. Based on the lack of detection of chemicals of concern associated with fire training activities and evidence of presence of chemical migration from Site OT02, the AOC has been integrated into Site OT02 by redefining the boundaries of OT02.

In FY97 a project (Runway 8L EE/CA) was initiated to characterize IRP sites and AOCs adjacent to Runway 8L, including SS11, SS23, ST26, LF14, LF15, EA11 (now OT02), SD36

(a small portion adjacent to runway), SD02 and SD03. Another EE/CA (HIA EE/CA) was completed for HIA site SS22 and LF16. For some of the sites involved in these projects, this was the first significant chemical data collection effort. In 1999, sites SS11, ST26, LF14, and OT02 were programmed for Removal Actions and Action Memoranda were signed by the 15 ABW Wing Commander and the HDOH. NFRAP documents were also signed and finalized in 1999 for the remaining project sites.

An additional Site Inspection was initiated in FY00 to collect chemical data for Site SD37 and AOCs EA56, EA57, and EA58. A project was also initiated in FY00 to develop closure documents (NFRAPs) for AOCs identified during the Base-wide PA/SI project (*Draft PA/SI*, EA Engineering Science and Technology, Nov 1996) that meet Air Force and HDOH closure requirements. That project completed NFRAP documents for the following eight AOCs; (1) AOC EA03 (JICPAC Former Photo Lab, Building 2045); (2) AOC EA51 (Old Photo Lab, Building 1012); (3) AOC EA59 (Puakauhi Court, Former Laundry/Dry Cleaners); (4) AOC EA68 (Former Engine Shop/Wash/Paint Shop/Abandoned Vats/AST, Building 1045); (5) AOC EA81 (Paint Shop, Building 1055); (6) AOC EA67 (Old Fire Station, [Building 954], Contaminated Soils); (7) AOC EA06 (Transportation Squadron Contaminated Soil); and (8) AOC EA12 (Aircraft Reclamation Area/Hazardous Materials Pharmacy Area). Completion of the project was delayed by shortage of funds. In November 2001, prior year funds were obtained, which will allow completion of the Site Inspection report and NFRAP documents.

A Base-wide PCB PA/SI was initiated in FY01 to evaluate potential historical ERA eligible releases of PCBs.

2.1.2 POL System Component Identification and Assessment Status

IRP work relating to all Petroleum, Oils, and Lubricants (POL) systems on Hickam AFB began in September 1988 with a records search for USTs. A field investigation, including geophysical surveys, soil gas surveys, soil sampling, and tank sampling, was completed for numerous UST-related IRP sites in August 1991.

A second preliminary assessment (PA)/records search was initiated in September 1992 for POL underground storage tanks (USTs) and aboveground storage tanks (ASTs). Information for all Hickam AFB IRP-eligible tanks was summarized in a Draft Preliminary Assessment Report in June 1993 (finalized as a draft document, Engineering Science).

In 1997, a comprehensive program was initiated to address all Environmental Restoration Account-eligible POL system components. The program consists of a multi-year effort to identify, field-verify, and close the system components (i.e., tanks, hydrants, and pipelines). Some cesspools have also been included in the program as potential areas where ERA-eligible contaminants may have been disposed through floor drains. Sampling performed during the closure process will determine if levels exceed HDOH action levels or other applicable criteria. System component locations with contaminant levels above action levels will be evaluated for additional characterization or cleanup, where appropriate. When all the components within the sites are closed and cleanup of the sites is accomplished, NFRAP documents will be prepared for the sites. A *Remediation Management Plan [RMP] for POL System Components (OU-2), Hickam AFB, Oahu, Hawaii* has been prepared as an addendum to this MAP (OHM Remediation Services, July 2001). The RMP is updated periodically.

As of August 2000, all POL system component locations had been field verified and programmed either for additional action or no further action. A complete inventory and status of POL system components may be found in the RMP.

2.1.3 Abandoned Drums

Abandoned drum removal projects occurred in 1994 and 1996. In the first removal, the 611th Civil Engineer Squadron (611 CES) of Elmendorf AFB, Alaska, removed 99 improperly disposed drums from Fort Kamehameha Site SD36. In 1996, additional drums were removed from Sites LF17, SD36, and SD37.

2.1.4 Fort Kamehameha IRP Work

Although IRP work at Fort Kamehameha is currently managed and funded by the Air Force, from 1993-1999, the Army had responsibility for funding and the Air Force was responsible for management of the program. A 1993 land transfer agreement delegated management of Fort Kamehameha cleanup activities to the Air Force and funding requirements to the Army. Requirements for characterization and cleanup of all sites and AOCs within Fort Kamehameha were identified to the Army by 15 CES/CEVR in 1996. Subsequently, all sites were closed on the Air Force Restoration Information Management System (AFRIMS) database and all funding of Fort Kamehameha IRP work became the responsibility of the Army. The following projects were completed using funds provided by the Army:

- A Final Report, *Relative Risk Data Collection for Multiple AOCs at Fort Kamehameha* was completed in December 1998. Eight AOCs, including EA17/18, EA19, EA25, EA65, EA66, EA80, AF01, and AF02 were included in that investigation. AF01 and AF02 were new AOCs identified during the SI. AOCs EA54 and EA55 were incorporated into AF02 because they were located within the boundary of the new AOC.
- A work plan was prepared for the LF05 EE/CA with 1997 funds.
- A Phase I Fort Kamehameha UST removal project was initiated in 1998 to locate and initiate removal and cleanup of all ERA-eligible USTs.

In September 1999, the Air Force and Army signed a Memorandum of Agreement. The agreement makes each service responsible for funding the removal and disposal of all hazardous substances on their own parcels (i.e., Fort Kamehameha is Air Force responsibility and Wheeler Army Airfield [AAF] is Army responsibility). All other operation and maintenance, including POL related infrastructure, remains the responsibility of the current landowner. In FY00, the Air Force programmed Fort Kamehameha IRP requirements in AFRIMS and funded the EE/CA for Site LF05. Fort Kamehameha cleanup requirements are now considered to be part of the Hickam IRP.

2.1.5 Military Construction (MILCON) and Other Non-IRP Source Discovery and Assessment

Because Hickam AFB is an active, evolving facility with long-range plans for continued mission-related and tenant operations, military construction and repair projects frequently interact with existing IRP sites and in some cases, contamination is discovered. A discussion of some of these projects is provided below:

- **Temporary Lodging Facility:** Initial engineering data for a temporary lodging facility are documented in a report from the U.S. Army Corps of Engineers (COE, June 1997). This report documents the visual presence and odor detection of possible POL

contamination in soil engineering borings constructed in the area between Hangar Ave, Vickers Street, and G Street. Based on the report's findings, and the adjacent location of historic fuel lines, the boundary of Site SS01 was redrawn to include the suspected contamination. A vapor barrier was installed beneath the building during construction. Subsequently, soil and groundwater data were collected in this area and additional characterization is programmed to delineate the extent of any fuel contamination in the area.

- **BXtra:** The Army-Air Force Exchange Service (AAFES) constructed a new facility in the area of Site SS01. Prior to construction, soil and groundwater sampling was conducted using non-ERA funds. Based on the results, several protective measures were taken to mitigate potential impacts to human health and facilitate recovery of fuel below the proposed facility. AFCEE, in conjunction with 15 CES/CEVR and AAFES, installed a pilot-scale bioslurper system beneath the BXtra footprint, consisting of 12 wells configured for soil vapor extraction and bioslurping. The pilot scale bioslurper was expanded and has continued to run since March 1997, when the fuel recovery operations commenced. In addition, a vapor barrier, an emergency venting system, and an alarm system were installed to ensure the safety of building occupants
- **Other MILCON Projects:** A number of proposed Military Construction (MILCON) projects to upgrade active fueling facilities on Hickam AFB are currently underway, or in planning. One such project involves replacement by Defense Energy Support Center (DESC) (formerly Defense Logistics Agency) of the existing hydrant fueling system, located on the flightline with a newer Type III Hydrant Fueling System. To assess potential environmental contamination that may be encountered during the system installation, a site characterization study was conducted. The study collected soil gas (passive), soil, and groundwater data along the proposed facility route. The area affected includes IRP sites SS08 (Rows 1,2,3, and 4), Site SS11 (Fuel Areas 5 and 11), Buildings 2020/2021 (component of Site ST28), and Row 23 (AOC AM/PA, aircraft maintenance/parking areas). In addition, sites managed by 15 CES/CEVC (Buildings 2158 and 2028) were involved. The site characterization detected contamination at several points along the route. At this point, no changes have been made to the Hickam IRP based on the data collected. The IRP is prohibited from responding to non-ERA eligible fuel release (releases occurring after 1984). DESC is responsible for cleanup of fuel releases after 1 October 1992. The 15 CES/CEVC is responsible for non-ERA eligible release occurring between 1984 and October 1992. Determination of the approximate release date is necessary to assess whether the site contamination is eligible for ERA funding.

Several compliance sites managed by 15 CES/CEVC are contiguous with IRP sites managed by 15 CES/CEVR:

- Site SS11 includes a subarea associated with Valve Pit 71 where fuel has been released into the subsurface at the Air Mobility Command ramp (southern portion of Site SS11). Contamination resulting from pre-1984 fuel releases is being addressed under the IRP. CEVC also is addressing a more recent fuel release in the ramp area. Activities to recover fuel are underway at this time.
- Site SS08 has some areas where non-ERA eligible releases of fuel have occurred. These locations are in the CEVC site inventory and will be addressed in outyears, pending availability of funding.

2.2 ENVIRONMENTAL CONDITION OF PROPERTY

The Air Force classifies environmental condition of property (ECP) using the following seven categories in order to (1) assess the progress of ongoing environmental restoration, (2) identify areas where further response may be required, and (3) facilitate reuse planning and property transfer. These categories have been recently revised and the new categorizations are currently being re-evaluated for potential inclusion in future versions of the Hickam AFB MAP.

Category 1: Areas Where No Storage, Release, or Disposal Has Occurred. These are areas where results of investigations show that no hazardous substances or petroleum products were stored, released into the environment, or disposed of on site property. Any Category 1 sites are indicated in white on Figure 2-1. There are no Category 1 IRP sites.

Category 2: Areas Where Only Storage Has Occurred. These are areas where the results of investigations show that only storage of hazardous substances or petroleum products or their derivatives has occurred. Any Category 2 areas are indicated in blue on Figure 2-1. There are no Category 2 IRP sites.

Category 3: Areas Where Storage, Release, Disposal, and/or Migration Has Occurred, but Require No Remedial Action. These are areas where environmental evidence demonstrates that hazardous substances or petroleum products or their derivatives have been stored, released, or disposed of, but are present in quantities that require no response action to protect human health and the environment. Any Category 3 areas are indicated in light green on Figure 2-1.

Category 4: Areas Where Storage, Release, Disposal, and/or Migration Has Occurred and All Remedial Actions Have Been Taken. These are areas where all remedial or other response actions necessary to protect human health and the environment have been taken and meet the provisions of CERCLA. Any Category 4 areas are indicated in dark green on Figure 2-1.

Category 5: Areas Where Storage, Release, Disposal, and/or Migration Has Occurred and Action Is Underway but Not Final. These are areas where the presence of sources or releases of hazardous or petroleum products or their derivatives has been confirmed based on the results of sampling or other methods. Remedial systems may be partially or entirely in place, but have not been demonstrated to regulatory agencies to be "operating properly and successfully" as defined in CERCLA. Any Category 5 areas are indicated in yellow on Figure 2-1.

Category 6: Areas Where Storage, Release, Disposal, and/or Migration Has Occurred, but Required Response Actions Have Not Been Taken. These are areas where the presence of sources or releases of hazardous substances or petroleum products or their derivatives has been confirmed based on the results of sampling and analysis and are at concentrations above action levels. Required remedial systems or other response actions have not been initiated. Any Category 6 areas are indicated in red on Figure 2-1.

Category 7: Unevaluated Areas or Areas Requiring Additional Evaluation. These are areas where the presence of sources or releases of hazardous substances or petroleum products or their derivatives is suspected, but not well characterized. Any Category 7 areas are indicated in gray on Figure 2-1.

The ECP is used as a planning tool to evaluate the appropriateness of any planned development. In general, areas categorized as Types 1, 2, 3, and 4 have fewer land use restrictions than areas categorized as Types 5, 6, and 7. IRP sites and AOCs at Hickam AFB have been classified into all seven of the ECP types based on current knowledge of environmental conditions at the installation. Table 2-1 summarizes the ECP categorization of Hickam AFB IRP sites and AOCs.

Common practice has been to apply the most conservative category to an entire site. However, this practice has resulted in over-generalizations of site conditions that do not accurately reflect specific areas within the sites. For instance, even though only a small portion of a site was shown to contain contaminants above screening criteria (Category 5 or 6) and a much larger portion was shown to be below screening criteria (Category 3 or 4), the whole site was determined to be a Category 5 or 6.

To more accurately reflect site conditions, subareas are depicted where portions of large IRP sites and AOCs fall into more than one category. (See Figure 2-1.) However, IRP sites and AOCs are listed in Table 2-1 according to the most conservative ECP category within each site.

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Figure 2-1 (11x17)

Figure 2-1/2

Table 2-1
Environmental Condition of Property
Hickam Air Force Base

Type	Description	Color	No. Sites & AOCs	Site Name(s)	
3	Areas Where Storage, Release, Disposal, and/or Migration has Occurred, but Require no Remedial Action	Light green	20	FT07 LF15 LF16 SD03 SS22 SS23 EA03 EA06B, C* EA09* EA12*	EA51* EA52* EA54** EA56A, D, I EA59* EA67* EA68* EA80 EA81* AM/PA (5, 6, 14)
4	Areas Where Storage, Release, Disposal, and/or Migration has Occurred and all Remedial Actions have been Taken	Dark green	3	SD36 SD37 ST26	
5	Areas Where Storage, Release, Disposal, and/or Migration has Occurred and Action is Underway but not Final	Yellow	18	LF14 LF17 OT02 SS01 SS11 SS13 SS15 ST01 ST20	ST28 ST29 ST30 ST31 ST32 ST33 ST34 ST35 ST38
6	Areas Where Storage, Release, Disposal, and/or Migration has Occurred, but Required Response Actions have not been Taken	Red	27	LF01 LF05 SD02 SD04 SS06 SS08 SS09 SS10 SS12 SS24 SS25 AF01 EA04 EA05*	EA10 EA17/18 EA19 EA25 EA39 EA44 EA55** EA56B, E, J EA57 EA58 EA65 EA66 AM/PA (2C, 2D, 2E, 2F, 3, 8, 10)
7	Unevaluated Areas Requiring Additional Evaluation	Gray	3	SD19 HK01	AM/PA (1, 2A, 2B, 4, 7, 9, 11, 12, 13)

*Designates an AOC subsite within AOC EA100.

Site SS18 is not shown since it was deferred to CEVC and administratively closed.

Site ST27 is not shown since it duplicated Site SS13 and was administratively closed.

AOC 100/Subsite EA06A is not shown since it was deferred to CEVC.

AOC EA15 is not shown since it was deferred to CEVC.

**Designates an AOC subsite within AF02.

AOC EA16 is not shown since it was deferred to CEVC.

AOC EA29 is not shown since it is ineligible for ERA funds based on active use.
AOC EA43 is not shown since Navy is responsible for it.

AOC EA46 is not shown since it was deferred to CEVC.
AOC FT08 (alias EA78) is not shown since it was deferred to CEVC.

2.3 OTHER PROPERTY ISSUES

2.3.1 Off-Base Property and Property Transfers

No off-Base properties are associated with Hickam AFB, except for adjacent land for which ownership has been transferred/quitclaimed to the Honolulu International Airport. These properties are discussed in Section 2.3.2, below.

2.3.2 Property Transfers

On August 30, 1990, a land exchange agreement between the State of Hawaii and U.S. Air Force conveyed 22.88 acres of Air Force property to the State. This land was characterized under the HIA EE/CA project. In 1999, No Further Response Action Planned documentation was finalized for landfills (SS22 and LF16) located on the transfer property. All IRP sites on the 22.88 acres have been closed.

In March 1993, the USAF acquired Fort Kamehameha from the Army through an Interservice Transfer of Real Property. The USAF now retains responsibility for funding and management of IRP sites located on Fort Kamehameha.

In 1994, the Runway 8L area was initially considered for transfer to the State of Hawaii Department of Transportation Airports Division. At that time, a Phase I EBS was conducted on 300 acres of Runway 8L-related land. Subsequently, the land area was modified and a second Phase I EBS was completed in February 1996 for 15 CES to document the physical condition of 365 acres. An EE/CA project to characterize and develop removal actions for IRP sites adjacent to or on the proposed transfer lands was initiated in FY97. The Runway 8L EE/CA was a significant restoration project for Hickam AFB. The project area covered a large portion of the central area of the Base and several large sites (e.g., canals) that extend over major portions of Hickam AFB are included within the project scope. Property that included Runway 8L and some adjacent areas, totaling 329.628 acres, was officially transferred from the Air Force to the State of Hawaii on 14 September 2000.

Sites included 'partly or in whole' within the proposed Runway 8L outgrant area include:

- SD02 – Manuwai Canal
- SD03 – Kumumauu Canal
- LF14 – Inactive Landfill #2
- LF15 – Inactive Landfill #3
- SS11 – POL Area K
- ST26 – Kuntz Pipeline
- SS23 – Explosive Ordnance Disposal (EOD) Area Soils
- SD36 – Abandoned Barrels
- OT02 (EA11) – AEC Site

The boundaries of the land transfer changed several times between 1997 and 2000. The final boundaries as presented in the signed transfer agreement also include three parcels that are on and/or adjacent to the following IRP sites:

- SS13 - John Rodgers Tank Farm
- LF17 - Landfill #6

No additional site characterization of Sites LF17 and/or SS13 was deemed necessary to facilitate the proposed transfer. The Air Force retains responsibility for cleanup of IRP sites on transfer property.

2.3.3 Non-Air Force Tenants

Non-Air Force tenants at Hickam AFB include the Federal Aviation Administration, the State of Hawaii, the Hawaii Air National Guard, the U.S. Army, and various utility and military organizations. A complete list of these organizations and their purpose on Base is presented in Table 2-2. Locations of these tenant organizations are shown in Figure 2-2.

The HIANG has performed characterization of a number of USTs and associated fuel plumes on Hickam property under their use. None of these USTs are managed by 15 CES/CEVR under the IRP.

The FAA is granted a 40-year real estate permit to use the property adjacent to the John Rodgers Tank Farm (JRTF). In association with FAA plans to expand the FAA tower facility, an environmental due diligence audit was conducted to evaluate the extent of any subsurface fuel contamination in the area of the proposed construction and assess any risk associated with that contamination to construction workers or future occupants. Fuel releases have been documented near the FAA tower at JRTF (Sites ST27 and SS13) and from the associated piping known as the Kuntz pipeline (Site ST26). Some petroleum hydrocarbons and elevated lead concentrations were detected on the FAA property that did not appear to be associated with operations at the JRTF. The FAA performed a risk assessment and constructed a new facility (TRACON) beginning in 1999.

The FAA also operates an Airport Surveillance Radar (ASR-9) just south of the JRTF. The facility has a UST that underwent site characterization in 1995. The site characterization report recommended excavation of approximately 70 cubic yards of contaminated soil. The FAA provided no further information on the results of this investigation to the Air Force. The Hickam AFB IRP does not manage the site.

Table 2-2
Non-Air Force and Tenant Units
Hickam Air Force Base

Organization	Facility/Purpose
Airman's Attic	Bldg. 1711/Thrift Officers' Wives' Club/Thrift Shop
Civil Air Patrol	Bldg. 2035, Hangar 11
Defense Commissary Service	Bldg. 2093
Defense Logistics Agency (DLA)	Bldg. 2060, Hangar 4
Defense Security Service	Bldg. 1102/Personnel Security Investigations
Department of Energy	Bldg. 3225/Administrative Support
Federal Aviation Administration	Bldgs. 3172 and 3173/Oper./Maint. Rtr. and Airport Survl. Facility (FAA-owned) Bldg. 3568/FAA Warehouse (FAA-owned) Bldg. 3179/Airport Control Tower, CERAP/TRACON (FAA-owned)
First Hawaiian Bank	Bldg. 1257 (Bank-owned)
GSA	Bldgs. 1725 and 1726 (GSA-owned)
Hawaiian Electric Company	Right of way overhead and underground lines
Hickam Federal Credit Union	Bldg. 1256 (Credit Union-owned)
Joint Intelligence Center, Pacific	Bldg. 2045, Hangar 3 (NOTE: this organization will be out of Hangar 3 by January 2002)
National Imagery and Mapping Agency	Bldg. 2060, Hangar 4/Admin. OFC and Dist. Center for Maps
State of Hawaii	Mokulele and Hickam Elementary School, Windcone right of way Road right of way for Interstate Defense Highway Storm drainage, and sewer/water line right of way Sound attenuation berm
State of Hawaii and Hawaii Air National Guard (HIANG)	HIANG training
U.S. Army	Bldg. 4027/Supt. Army Deployment Bldgs. 3318 and 3225/87 th Quartermasters Army Bldg. 45/Central Identification Lab Army Bldg. 40/COMSEC Logistics Support Unit
U.S. Navy	Fence, fuel/water/sewer/power lines
Verizon Hawaii	Right of way poles and lines for communication Bldg. 989/Operate Comm. Facility (Verizon-owned)

Figure 2-2/1 (11x17)

Figure 2-2/2 (11x17)

3. INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

3.1 RESTORATION PROGRAM STATUS

The Installation Restoration Program (IRP) began at Hickam AFB in 1983 with funding from Headquarters PACAF for a Phase I installation Assessment/Records Search. Management of the IRP for Hickam AFB was transferred in 1990 from PACAF to the 15th Civil Engineer Squadron, Environmental Restoration Element (15 CES/CEVR).

3.1.1 Summary of Regulatory Agreements

At present, there are no formal regulatory agreements in effect for the environmental restoration effort at Hickam AFB. Formal agreements between HDOH and the USAF have been in the form of jointly signed action memoranda and NFRAP documents for specific sites.

3.1.2 Restoration Sites and Areas of Concern

Installation Restoration Program (IRP) sites are areas where hazardous substances are confirmed to have been deposited, stored, disposed of, or placed, or have otherwise come to be located. A site is the basic unit of planning and implementing "response actions." Relative risk scores are calculated and periodically updated for IRP sites.

An Area of Concern (AOC) is a potential or suspected area of contamination based on limited historical information. Some of the AOCs on Hickam AFB have relative risk scores and others do not have chemical data to derive a score. All IRP sites and AOCs are entered into AFRIMS, which is a database used by the Air Force Headquarters, MAJCOMS and bases to communicate requirements, schedules, costs, funding information, and validation of IRP projects and sites.

Forty-one IRP sites and 21 AOCs are currently being actively managed under the IRP. Each of the sites and AOCs are also in the AFRIMS database. For management purposes, one of these 21 AOCs (AOC EA100) has been created in AFRIMS to include nine AOCs that are currently considered to meet Air Force NFRAP criteria. All sites and AOCs are listed in Tables 3-1 and 3-2 and illustrated in Figure 3-1 for IRP sites (except storage tanks and pipelines), Figure 3-2 for storage tank and pipeline sites, and Figure 3-3 for AOCs. Table 3-2 notes which AOCs are included in AOC EA100. The number of AOCs represented in this Management Action Plan has been revised to reflect the most current information. Typical reasons for eliminating an AOC include deferral to another program, such as 15 CES/CEVC, or incorporation of the AOC into an existing site. Site or AOC-related environmental conditions that are deferred to other programs are typically conditions that do not qualify for use of ERA funds (which are limited to use for investigation and cleanup of contamination resulting from releases prior to 1984). Those AOCs that have been deferred to other programs are listed on Table 3-3.

POL system components (underground storage tanks, piping, hydraulic lifts, and cesspools) which qualify for ERA funds are being managed under the IRP as subsites within larger sites. A comprehensive list of USTs and pipelines is included as Table 1 in the *Remediation Management Plan [RMP] for POL System Components (OU-2)* (OHM

Remediation Services, July 2001). The RMP is an addendum to this Management Action Plan and is updated on an as-needed basis.

3.2 COMMUNITY INVOLVEMENT STATUS

Communication with the public regarding the environmental restoration effort at Hickam AFB is addressed in the Community Relations Plan for 15th Air Base Wing Installations, dated July 1995 and updated May 2001. The Community Relations Plan (CRP) originally covered ten 15 ABW installations but has been revised to cover the seven currently-active 15 ABW installations since Wake Island Airfield has been transferred to management by the 36 Air Base Wing, Punamano AFS is closed and environmental restoration responsibilities for Wheeler Army Airfield have been transferred to the U.S. Army.

Hickam AFB is near the communities of Aliamanu, Airport, Aiea, and Pearl City. At the time of the 1990 Census, their total population was 143,582. Neighborhood Boards 18, 19, 20, and 21 represent the communities to the City & County of Honolulu City Council. The military presence has been strong since before 1940, with the USAF, U.S. Army, and U.S. Navy present.

The present status of community relations' activities at Hickam AFB is summarized below.

- **Community Relations Plan.** Community relations' efforts are conducted within the guidelines of the Community Relations Plan (CRP) for 15th Air Base Wing Installations (15 ABW ERP, May 2001). The Community Relations Plan was established by the 15th ABW through a process of numerous interviews and surveys. It states that the public feels the best way to communicate USAF restoration activities at Hickam AFB is through press releases, articles, informational flyers, and presentations at public meetings. The environmental restoration program provides frequent briefings, fact sheets, environmental and other community events, and press releases. Updates to the plan are being accomplished on a project-specific basis.
- **Administrative Record.** An administrative record compliant with CERCLA § 113(k)(1) is maintained by 15 CES/CEVR at Hickam AFB. It comprises all of the documents and correspondence used in the decision-making process for sites at an installation. It is also available to the public at the Hawaii State Library, Main Branch, at 478 South King Street in Honolulu. The record has been transitioned from microfiche to electronic format, and computers with the full administrative record are being placed at the State library during FY2002. Updates of the administrative record are provided on a routine basis.
- **Information Repository.** An information repository accessible to the general public has been developed and is located at 15 CES/CEVR and at the Hawaii State Library, Main Branch, at 478 South King Street in Honolulu. The electronic administrative record referred to above is also available at the Hawaii State Library, Main Branch.
- **Appropriate level of community involvement.** The purpose of 15 CES/CEVR's community involvement efforts is to generate community interest and participation in the restoration process, which has been accomplished by a series of community notification and meetings that led up to the formation of an interim RAB.
- **Restoration Advisory Board status.** 15 CES/CEVR established a Restoration Advisory Board (RAB) for Hickam AFB as of February 1997. An orientation meeting for

the RAB was conducted in January 1997. The first RAB meeting was held on 26 February 1997, at which time the Community Co-Chair was elected. Since that time, ten RAB meetings have been conducted, including two site visits. Initially, committees were established for Technical Review, Community Outreach, Cultural Resources, and Charter Formation. Since Nov 97, community membership on the Hickam RAB diminished in 2000/2001 from 15 to three active members. The decline in RAB attendance is perceived as an indication that members were satisfied that the 15 CES/CEVR program was operating effectively. All those who resigned indicated a high level of confidence in the program. Two members were added in 2001, bringing community membership to a total of five. Continuing efforts are being made to reevaluate community interest and increase membership, particularly for residents of the base, who have historically been underrepresented.

- **Community relations activities for remedial investigation/feasibility study (RI/FS) and remedy selection process.** Information on restoration project status and forthcoming projects routinely is communicated to the general public. When RAB meetings are held or critical project documents become available, 15 CES/CEVR publishes a public notice in a major local newspaper stating the date, time, location, and topic of the meeting or the availability of documents for public comment.
- **Technical Assistance for Public Participation Grant.** A Technical Assistance Public Participation (TAPP) Grant is a type of grant providing up to one percent of an Installation's cost to complete, or \$25,000 annually, whichever is less, and a total of \$100,000 per RAB. A paid public notice was used in October 2001 to make the public aware of the availability of the TAPP grant.
- **Technical Outreach Services for Communities (TOSC).** The TOSC program helps guide communities through the environmental cleanup and site reuse process. TOSC is a no-cost, non-advocate technical assistance program supported by the Hazardous Substance Research Centers. TOSC provides a variety of services to interested citizens, including: a toll-free TOSC information line for services (1-800-653-6110); workshops and technical and educational programs; site assistance, including review of technical documents, assistance in preparing written comments, and participation in public hearings; and public education on hazardous substance issues.

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
FT007	Fire Training Area	FT07	5	3	Waste POL, solvents, flammable wastes	1940-1977	NFRAP	NR	No removal/remedial activities. NFRAP completed.	CERCLA
LF001	Landfill 1 (Site 1)	LF01	5	6	Shop wastes, paint sludges, solvent sludges, lubricants	1942-1946	RI	HIGH	A remedial investigation and several rounds of groundwater monitoring have been completed. An RI work plan, preceded by geophysical and passive soil gas sampling, is currently under development	CERCLA
LF005	Tri-Services Landfill (Site 5)	LF05	5	6	Heavy metal sludges, POL, solvents, paint waste, hydraulic fluid	1950-1965	RI/FS	HIGH	RI/FS underway	CERCLA
LF014	Inactive Landfill 2 (Site 2)	LF14, EA01	6	5	Tree trimming refuse & fill material; PAHs	1965-1980s	LTM	HIGH	AOC EA01 was integrated into this site. Sampled under SI and EE/CA. Portion of site was recommended for removal action for PAHs (completed). Fence has been constructed and monitoring initiated.	CERCLA
LF015	Inactive Landfill 3 (Site 3)	LF15	6	3	Tree trimming refuse, road demolition rubble & fill material	1965-1980s	NFRAP	NR	NFRAP finalized	CERCLA
LF016	Inactive Landfill 4 (Site 4)	LF16	6	3	Tree trimming refuse, road demolition rubble	1967-1980	NFRAP	NR	NFRAP finalized	CERCLA

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
LF017	Inactive Landfill 6 (Site 6)	LF17	5	5	Tree trimming refuse, road demolition rubble, PCBs, PAHs, pesticides, metals	1967-1980	RI	MEDIUM	Further investigation recommended. Drum and debris removal – 1996. SI completed in 1999. RI Work Plan development underway	CERCLA
OT002	AEC Area	OT02, EA11, EA38	6	5	Solvents	1950s-1980s	LTM	MEDIUM	Formerly AOCs EA11 and EA38. EE/CA and Action Memorandum completed with recommended action (long-term monitoring) underway (achieved RIP)	CERCLA
SD002	Manuwai Canal Storm Drainage System	SD02	1	6	POL, PAHs, waste, solvents, heavy metals, pesticides & herbicides	1940-present	RI/FS	HIGH	RI/FS underway	CERCLA
SD003	Kumumauu Canal	SD03	1	3	POL, solvents, heavy metals, pesticides, herbicides	1941-present	RI/FS	HIGH	AOCs EA07 & EA08 (wash racks), EA20 and EA70 (tributaries) included in site. RI underway; NFRAP proposed	CERCLA
SD004	Motor Pool Storm Drain	SD04	1	6	POL, solvents, heavy metals, pesticides & herbicides	1941-present	RI	HIGH	Awaiting RI (FY02) Includes AOCs EA22 (Wash Racks, Bldg. 2025 and near Bldg. 1055) and EA69 (Bldg. 2030, Engine Wash/X-Ray Photo Development)	CERCLA
SD019	Sanitary Sewer System (Site 24)	SD19	5	7	Liquid waste from industrial shops on base	Prior to 1969	PA	LOW	Awaiting preliminary assessment.	CERCLA

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
SD036	Abandoned Barrels	SD36	6	4	Abandoned drums	Pre-1984	NFRAP finalized	NR	Drum removal – 1994 & 1996 Site characterization and NFRAP finalized under Runway 8L EE/CA, 1999	CERCLA
SD037	Fort Kamehameha Drum Site	SD37	5	4	Abandoned drums	Pre-1984	SI and NFRAP	NR	Drum removal – 1996	CERCLA
SS001	Fuel Leak Areas 13 & 14 (Areas G&H)	SS01	4	5	AVGAS, lead	1940-1974	IRA and IRA-O	HIGH	Subsurface fuel recovery – 1986; recovery equipment replacement – 1991; additional recovery wells – 1993; bioventing pilot test – 1993; bioslurping pilot – 1995-2000; bioslurping operations – 2001; installation of additional bioslurper in area of Burger King – 2001 to 2002, Post Office and Ball Field, Capehart Village – 2002 to 2003.	CERCLA
SS006	Fuel Leak Area 9 (Area B)	SS06	3B	6	Leakage from fuel hydrants P5A-P8A	1941- 1970s	SI	MEDIUM	EE/CA planned.	CERCLA
SS008	Fuel Leak Area 10, Building 2030 (Area C)	SS08	3B	6	MOGAS/ AVGAS, fuel	1941- 1970s	SI	MEDIUM	3 USTs removed - 1995 EE/CA programmed	CERCLA
SS009	Fuel Leak Area 11, Bldg. 2035 (Area D)	SS09	3B	6	Fuel	1941- 1970s	SI	MEDIUM	12 USTs removed – 1975 and 1977 EE/CA programmed	CERCLA
SS010	Fuel Leak Area 12 (Area F)	SS10	3B	6	Aviation fuel	1941- 1970s	SI	HIGH	2 USTs removed – 1975 EE/CA programmed AOC EA48 (potential sludge pit) included in site	CERCLA

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
SS011	Fuel Leak Area 16 (Area L)	SS11, EA02	6	5	JP-4/AVGAS	1978- present	Action Memo final. IRA underway	HIGH	AOC EA02 (~100K gallon fuel spill from 41053/41054) was combined into site Site Characterization for EE/CA complete; Portion of site is undergoing interim remedial action (bioslurping pilot test complete, monitored natural attenuation (MNA) and long-term monitoring)	CERCLA
SS012	Fuel Leak Area 17 (Area O)	SS12	3B	6	MOGAS fuel, POL, solvents	1940s- 1970s	SI	MEDIUM	EE/CA planned	CERCLA
SS013	Fuel Leak Area 18, John Rodgers Tank Farm (Areas P and Q)	SS13	3A	5	JP-4	1940s- 1970s	EE/CA	HIGH	Installation of underground rubber sheet – 1972; groundwater fuel recovery – 1986-1987; 11 USTs, 1 AST, and pipeline removed – 1994; soil gas survey – 1994 AOC EA50 (potential sludge pits) included in site EE/CA completed and Action Memorandum underway to do limited source removal and MNA Field evaluation of phytoremediation technology	CERCLA
SS015	Fuel Leak Area 15 (Area K)	SS15	3A	5	Fuel	Pre-1970	EE/CA	HIGH	Groundwater fuel recovery – 1986; additional extraction wells – 1993; soil vapor test probe test – 1993; Soil Vapor Containment (field) Assessment – 1994; Bioventing pilot test – 1993 EE/CA completed and Action Memorandum underway to do repetitive source removal and MNA.	CERCLA

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
SS018	PCB Storage	SS18	NA	NA	PCBs	Unknown-1990	NFA	NR	Administrative Closure in 1993; SS18 was an active site regulated under RCRA. All responsibilities were deferred to 15 CES/CEVC. Characterization was completed.	RCRA, TSCA
SS022	Honolulu International Airport Site	SS22	6	3	Fuel	1965-1980	NFRAP	NR	AOC EA40 was integrated into site. Site characterization and NFRAP completed.	CERCLA
SS023	EOD Area Contaminated Soil	SS23	6	3	Contamination in background boring	Unknown	NFRAP	NR	NFRAP completed	CERCLA
SS024	Reef Taxiway Contaminated Soil	SS24	5	6	Contamination in background boring	Unknown	PA	LOW	Awaiting Site Inspection	CERCLA
SS025	Hickam Village Shoppette	SS25	3B	6	Fuel	Unknown	SI PA/SI	MEDIUM	EE/CA planned	CERCLA
ST001	Officer's Club USTs	ST01	2	5	POL	1941-1975	Removal	LOW	UST removal program underway	SCP
ST020	EOD Area USTs	ST20	2	5	Fuel oil	1942-1966	Removal	LOW	Fort Kamehameha - Bermed AST removed in Phase 4 of UST/AST removal project – 1996; multiphase removals underway. Includes USTs identified with AOCs EA55 (Fort Kamehameha hazardous cargo parking), EA72 (Battery Clossen) and EA77 (Army Fort Kamehameha USTs)	SCP
ST026	Kuntz Pipeline	ST26	6	4	POL	1940s-1977	NFRAP	NR	EE/CA and Action Memorandum completed. Pipeline/valve pit closure completed and considered final action as documented in NFRAP.	SCP

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
ST027	John Rodgers Tank Farm #6 [Now under SS13]	ST27	2	4	Fuel, unknown wastes	1940s- 1970s	Administrative Closure	NR	Rubber sheet installed – 1972; 14 mounded tanks removed and free product removal – 1974; groundwater fuel recovery – 1986; USTs removed – 1994. Site Administratively Closed and remaining contamination being addressed under Site SS13.	SCP
ST028	Hickam Runway USTs (minus ST28F)	ST28	2	5	Heating oil, diesel, POL	1950-1973	Removal	MEDIUM	Multiphase component closures underway. Site includes multiple components including the following AOCs (components): EA41 - Contaminated Soil (Bldgs. 2021 & 2020), Cesspools EA29, EA30, EA33, EA34, EA35, EA36, & EA37, UST EA71	SCP
ST029	Bishop Point USTs (plus part of Hangar Ave. abandoned pipeline)	ST29	2	5	Fuel oil, POL	1940s- 1976	Removal	LOW	Multiphase UST removals underway. AOCs EA31, EA32 (cesspools) included in site.	SCP
ST030	Signer Residential USTs	ST30	2	5	Fuel oil	1940s- 1975	Removal	LOW	Multiphase UST removals underway.	SCP
ST031	Hangar Ave USTs (plus part of Hangar Ave. abandoned pipeline)	ST31	2	5	Motor oil, used oil, diesel, POL	1939-1974	Removal	MEDIUM	Multiphase UST removals underway. Includes AOC EA61 (UST Bldg. 1035), EA63 (Hydraulic Lift (Bldg. 1035)	SCP

**Table 3-1
Site Summary Table
Hickam Air Force Base**

AFRIM Site Code (KNMD)	Description	Alias	OU	ECP Type	Materials Disposed of or Potential Chemicals of Concern	Dates of Operation	IRP Status	Relative Risk Rank	Action(s) Status	Regulatory Program
ST032	Vickers Ave USTs (plus part of Hangar Ave. abandoned pipeline)	ST32	2	5	Fuel Oil, Solvents, POL	1941-1968	Removal	LOW	Multiphase UST removals underway.	SCP
ST033	Fox Blvd. Residential USTs	ST33	2	5	Diesel Fuel	1930-1975t	Removal	LOW	9 USTs removed prior to CEVR involvement. Multiphase UST removals underway. AOCs EA26, EA27 (cesspools) included in site.	SCP
ST034	POL Area 11 Tank Farm POL	ST34	2	5	JP-4 diesel fuel	1940-1975	Removal	LOW	Free product removal – 1986-1989; bioventing pilot test – 1993. Multiphase UST removals underway. AOC EA28 (cesspool) included in site.	SCP
ST035	Kuntz Residential USTs	ST35	2	5	MOGAS, diesel, fuel oil, waste oil	1942-1971	Removal	LOW	Multiphase UST removals underway. Includes AOC EA64 (Hydraulic Lifts Bldg. 1720)	SCP
ST038	Fort Kamehameha USTs	ST38	2	5	Unknown fuel	1915-1973	Removal	LOW	Fort Kamehameha: Multiphase UST removals underway. AOC EA42 (cesspool) included in site. Potential USTs at AOCs EA53 (HIANG ramp USTs), EA73 (Battery Hawkins), EA74 (Battery Jackson), EA75 (Battery Selfridge), and EA76 (Battery Hasbrouck) are included in site.	SCP

15 CES/CEVC = 15th Civil Engineer Squadron/Environmental Compliance Element
AFRIM = Air Force Restoration Information Management System
AOC = Area of Concern

AST = Aboveground Storage Tank
AVGAS = Aviation Gasoline
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended

ECP = Environmental Condition of Property
EE/CA = Engineering Evaluation/Cost Analysis
EOD = Explosive Ordnance Disposal
FS = Feasibility Study
IRP = Installation Restoration Program
JP-4 = Jet Propulsion Fuel Grade 4

LTM = Long-Term Management
MNA = Monitored Natural Attenuation
MOGAS = Motor Gasoline
NA = Not Assigned
NFA = No Further Action
NFRAP = No Further Response
Action Planned

OU = Operable Unit
PA = Preliminary Assessment
PAH = Polycyclic or Polynuclear
Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
POL = Petroleum, Oils, and
Lubricants

RCRA = Resource Conservation and Recovery Act
RI = Remedial Investigation
RIP = Remedy-in-Place
SCP = Hawaii State Contingency Plan
SI = Site Inspection or Investigation
TSCA = Toxic Substances Control Act
UST = Underground Storage Tank

NR = Relative Risk Not Ranked. This applies to sites that have been closed through NFRAP or Administrative Closure (that is, when Remedy-in-Place is completed for the site)

Table 3-2
Areas of Concern
Hickam Air Force Base

SITE ID (AOC)	Description	ECP Type	Suspected Contaminants	Dates of Operation	Action Status	Comments	Regulatory Program
EA03	JICPAC, Bldg. 2045	3	Photo waste, solvents, TCE, Ag, ferrocyanide, pesticides, POL	1960s- 1991	PA – 1996 SI – 1999	NFRAP signed August 2000.	CERCLA
EA04	Solvents in Groundwater North of LF14 (alias Fuel Vapor Area, Auto Hobby Shop)	6	Fuel, solvents	Unknown	PA – 1996 SI – 1999	Area expanded in 1998 to include solvents in groundwater	CERCLA
EA05	Battery Acid Neutralization Shop	6	Acids, metals, glycols	1940s- 1987	PA/SI 1996	Sample from drain necessary to assess need for additional response action and meet HDOH closure requirements	CERCLA
EA10	Aircraft Maintenance /Carburetor Cleaning Area, Bldg. 1060	6	VOC (solvents)	1940s- Unknown	PA – 1996 SI – 1999	Further investigation programmed	CERCLA
EA17 & 18	HIANG Drainage Canals Fort Kamehameha	6	POL, solvents, metals, pesticides	1960s- present	PA – 1996 SI – 1998	Screening Level Risk Assessment recommended. Identified potential CWA issues for compliance action (15 CES/CEVC)	CERCLA
EA19	Debris Mound Fort Kamehameha	6	PAHs, PCB, metals	Unknown	PA – 1996 SI – 1998	Fort Kamehameha AOC identified under PA (1996) and sampled under SI (1998); Chemicals of concern are PAHs, PCB, and metals; Recommended for additional sampling and removal	CERCLA
EA25	Fort Kamehameha Debris Mound	6	VOC, fuel, oil, PAH	Unknown	PA – 1996 SI – 1998	Programmed for SI data collection	CERCLA
EA39	Kuntz Avenue Entrance Dump	6	Road demolition debris, construction debris, unknown wastes	1965- 1970s	PA – 1996 SI – 1999	PA complete. Additional SI programmed	CERCLA

**Table 3-2
Areas of Concern
Hickam Air Force Base**

SITE ID (AOC)	Description	ECP Type	Suspected Contaminants	Dates of Operation	Action Status	Comments	Regulatory Program
EA44	Kuntz Avenue Salvage Yard	6	POL, VOCs, PCB, metals	1946-1971	PA/SI 1996	HDOH requires additional groundwater sampling. PCBs detected on site will be addressed under Base-wide-PCB project	CERCLA
EA56	POL Valve Pits EA56A, D, I EA56B, E, J (EA56F, G, H, K, L not included)	3 6	POL fuel	1937- present	PA – 1996 SI – 1999 SI – 2000	No further action recommended for valve pits 56A, D, I Investigation underway for valve pits 56B, E, J	SCP
EA57	Former Base Motor Pool	6	VOCs, SVOC, metals	1940s - 1959	PA – 1996 SI – 1996 SI – 2000	Limited SI investigation (EA, 1996) did not reveal any compounds related to motor pool activities. Arsenic & beryllium exceeded preliminary remediation goals. Additional SI underway	CERCLA
EA58	Halemaka Street/Kuntz Ave Motor Pool	6	VOCs, SVOCs, metals	1940s-est. 1960s	PA – 1996 SI – 1996 SI – 2000	Limited SI (EA, 1996) reported elevated metals in soil and sediment (from storm drain). Additional SI underway	CERCLA
EA65	Wash Rack HIANG, Ramp Area Fort Kamehameha	6	SVOC, metals herbicides	1963- present	PA – 1996 SI – 1998	Groundwater sampling for VOCs and metals recommended. Require further validation of ERA-eligibility. Programmed for SI. Recommendation made to CEVC on operation and maintenance improvements	CERCLA

Table 3-2
Areas of Concern
Hickam Air Force Base

SITE ID (AOC)	Description	ECP Type	Suspected Contaminants	Dates of Operation	Action Status	Comments	Regulatory Program
EA66	Wash Rack HIANG, near Bldg. 3427 Fort Kamehameha	6	VOCs, pesticides, herbicides, metals	1960s - 1990s	PA – 1996 SI – 1998	Programmed for SI	CERCLA
EA80	Former Navy Tower, Bldg. 3387 Fort Kamehameha	3	VOCs, pesticides	1950- unknown	PA – 1996 SI – 1998	Programmed to conduct SI for VOCs and pesticides with screening level risk evaluation	CERCLA
AF01*	Former HIANG Motor Pool	6	VOC, TPH, PAH	1940-1960	SI – 1998	Further investigation recommended	CERCLA
AF02** Includes following AOCs: - EA54 - EA55	Former Army Cantonment Area (a.k.a. casual training depot)	6	VOC, TPH, PAH	1940-1960	PA – 1996 Relative Risk Data Collection - 1998	Further investigation recommended for AOC; no further action is recommended for EA54, which was incorporated into AOC AF02; Data for EA54 will be maintained for comparison with other areas within AF02	CERCLA
	Fort Kamehameha Photo Lab	3	Photochemical wastes, metals				
	Fort Kamehameha Motor Pool	6	VOCs, metals				
AM/PA	Aircraft Maintenance (AM) & Parking Areas (PA) AM/PA 5, 6, 14	3	VOC, TPH, PAH, PCBs, Lead	1943- unknown	SI – 1998	No further action recommended for AM/PA areas 5, 6, 14 Further investigation recommended for AM/PA areas 2C, 2D, 2E, 2F, 3, 8, 10	CERCLA
	AM/PA 2C, 2D, 2E, 2F, 3, 8, 10	6					
	AM/PA 1, 2A, 2B, 4, 7, 9, 11, 12, 13	7					
HK01	Base-wide PCBs	7	PCBs	Pre-1984	NA	PA/SI underway. AOC includes PCBs detected at Site ST32 and AOC EA44.	TSCA, CERCLA

**Table 3-2
Areas of Concern
Hickam Air Force Base**

SITE ID (AOC)	Description	ECP Type	Suspected Contaminants	Dates of Operation	Action Status	Comments	Regulatory Program
EA100***	<u>Multiple NFRAP AOCs</u>						CERCLA
- EA06	Transportation Squadron Contaminated Soil	3	Metals, pyrene	NA	PA/SI 1996	EA06A deferred to compliance (15 CES/CEVC). EA06B put in OU-2, ST29. NFRAP completed June 2001	
- EA09	Industrial Waste Treatment & Disposal Facility (Bldg. 2016)	3	Petroleum, solvents, oils, antifreeze	1972- 1980s	PA/SI 1996	NFRAP decision pending	
- EA12	Aircraft Reclamation Area	3	VOC, SVOC, metals		PA/SI 1996	NFRAP completed June 2001	
- EA51	Old Photo Lab, Bldg. 1012	3	Photochemical wastes, metals	1947- 1980s	PA – 1996 SI – 1999	NFRAP signed August 2000	
- EA52	Bldg. 3370 Sewer Pump Station	3	Lead, PCBs	1939-1987	PA – 1996	NFRAP pending. Bldg. was demolished.	
- EA59	Puakaumi Court Laundry/Dry Cleaners	3	VOC, SVOC, metals	1943-1996	PA – 1996 SI – 1999	NFRAP signed August 2000	
- EA67	Old Fire Station	3	VOC, SVOC	1946-NA	PA/SI 1996	NFRAP completed June 2001	
- EA68	Engine Wash/Paint Shop Bldg. 1045	3	Fuel, solvents, lead, PCB	1942-NA	PA – 1996 SI – 1999	NFRAP signed August 2000	
- EA81	Paint Shop, Bldg. 1055	3	Oil, metals	1945-NA	PA – 1996 SI – 1999	NFRAP signed August 2000	
				1941-now			

15 CES/CEVC = 15th Civil Engineer
Squadron/ Environmental
Compliance Element
Ag = Silver
AOC = Area of Concern

CERCLA = Comprehensive
Environmental Response,
Compensation, and Liability Act
of 1980, as amended
CWA = Clean Water Act
HDOH = Hawaii Department of Health

NA = Information Not Available
NFRAP = No Further Response Action
Planned
PA = Preliminary Assessment
PAH = Polycyclic or Polynuclear
Aromatic Hydrocarbon

PCB = Polychlorinated Biphenyl
POL = Petroleum, Oils, and
Lubricants
SCP = Hawaii State Contingency Plan
SI = Site Inspection or Investigation

SVOC = Semivolatile Organic
Compound

TCE = Trichloroethylene
TPH = Total Petroleum Hydrocarbons

TSCA = Toxic Substances Control Act
VOC = Volatile Organic Compound

* AOC AF01 includes multiple potential sources including a former auto maintenance building, gas station, and photo shop.

** AOC AF02 consists of three potential sources located adjacent to each other. Sources include former fuel station, former photo lab/sludge drying pit, and a motor pool. These sources are combined for investigation and AOC management purposes.

*** This table has been designed to reflect what is in the AFRIMS database. AOC EA100 was created to manage AOCs that have a high probability of meeting NFRAP criteria. For this reason, the AOCs in EA100 are managed as a unit. However, for the purpose of maintaining clear records, individual closure documents will be (or have been) produced and individual site descriptions are provided in this table.

Table 3-3
Areas of Concern Deferred to Other Programs
Hickam Air Force Base

Tracking Number	Description	Disposition Status
AOC EA100/EA06	Transportation Squadron Contaminated Soil	Identified under PA (EA, 1996). Completed NFRAP on portion of site (June 2001). Subsite "A" deferred to compliance element (15 CES/CEVC). Listed under AOC EA100.
EA15	Engine Trim Area contaminated soil	Identified and sampled under PA/SI (EA, 1996). Ineligible for ERA funds based on active use. Deferred to compliance (15 CES/CEVC).
EA16	Seawall POL Fuel Leak	Active pipeline. Leak was reported to have occurred in 1990 making it ineligible for ERA funds. Deferred to compliance element (15 CES/CEVC).
EA29	Cesspool Building 2021	Ineligible for ERA funds based on active use.
EA43	Sewage Treatment Plant Contaminated Soil	Removed from consideration under Air Force IRP. Navy has responsibility. Findings are documented in <i>Relative Risk Data Collection for Multiple Areas of Concern</i> (1998, CH2M HILL) and have been identified to the Navy via the 1998 document and prior conversations.
EA46	Seabreeze/Boat Launch Contaminated Soil	Deferred to compliance (15 CES/CEVC) via memo (July 1999).
FT08, alias EA78	Fire Training Area	Active fire training area from 1977-1989. Site is not ERA-eligible. Was deferred to 15 CES/CEVC. Remedial Action completed by 15 CES/CEVC.

15 CES/CEVC = 15th Civil Engineer Squadron/Environmental Compliance Element

AOC = Area of Concern

ERA = Environmental Restoration Account

IRP = Installation Restoration Program

NA = Information Not Available

NFRAP = No Further Response Action Planned

PA = Preliminary Assessment

POL = Petroleum, Oils, and Lubricants

SI = Site Inspection or Investigation

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Figure 3-1 page 1

Figure 3-1/2

Figure 3-2, page 1

Figure 3-2/2

Figure 3-3

Figure 3-3/2

4. INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STRATEGY

The purpose of this chapter is to summarize the installation-wide environmental restoration strategy for Hickam AFB.

4.1 RESTORATION PROGRAM STRATEGY

4.1.1 Zone Designations

Zones are geographically contiguous, or characteristically similar, areas amenable to management as single investigative units. As such, zones will define the investigation strategy at Hickam AFB. At Hickam AFB, zones are being developed to organize the classification of study areas and operable units. Several zone designations have been or will be developed for use in evaluating impacts to resources.

4.1.1.1 Operable Unit/Site Strategy

Operable units (OUs) are areas or sites that can be managed in a similar fashion based on the nature of contaminants, similar media or geographic location, or areas that may be remediated using similar techniques or within a similar timeframe. The operable units that have been established at Hickam AFB are:

- OU 1 – Canals and related storm water drainage systems
- OU 2 – Inactive "previously-closed" underground storage tanks (USTs), cesspools, hydraulic lifts, and POL pipelines
- OU 3 – POL-contaminated soils (with only minimal or incidental groundwater contamination)
 - OU3A – Accelerated fuel spill remediation sites. Sites SS13 and SS15 are accelerated based partly on the high relative risk scores and partly due to the relatively large amount of environmental data that exist, mostly because of previous efforts to recover free-floating fuel product at these sites.
 - OU3B – Sites SS06, SS08, SS09, SS10, SS12, SS25
- OU 4 – Groundwater plumes with floating fuel product
- OU 5 – Source control sites (i.e., soil and/or debris where migration or exposure is the primary concern). OU5 includes a variety of landfills, abandoned drums, and miscellaneous contamination concerns.
- OU 6 – Sites adjacent to, or on Runway 8L (this OU excludes those sites that are already included in operable units that meet accelerated schedule requirements for potential transfer property).

The assignment of sites to operable units is complicated by contaminant and physical characteristics of the sites, size (such as canals which cross major portions of Hickam AFB), and differences in relative risk, which may influence funding priorities. Therefore, the designation of operable units for IRP management remains flexible. Operable units may be added or deleted in the future, and sites may be moved from one operable unit to another, as additional data are gathered.

All IRP sites and some AOCs have been assigned to an operable unit; assignments are shown on Figure 4-1 for all IRP sites (except storage tanks and pipelines) and Figure 4-2 for storage tank and pipeline sites. In general, AOCs are being managed together as a functional operable unit.

4.1.1.2 Other Uses of Zones

UIC Zones. The State of Hawaii has established the Underground Injection Control (UIC) program to protect aquifer water quality. For State groundwater classification, Hickam AFB is entirely within Zone 2, defined as the coastal area below the UIC line. The coastal area is characterized by a brackish aquifer subject to tidal influences that is not used as a primary drinking water supply. The UIC designation is important in assessing relative site risk, identifying remedial action objectives, and selecting remedial technologies.

Hydrogeological Zones. As more Base-wide hydrogeologic data become available, hydrogeological zones may be established which show distinct areas of subsurface strata, such as the location of tuff, coral, and fill layers, as well as the rate and direction of groundwater flow throughout the installation. Identification of these zones would support the site-wide conceptual model, relative risk screening evaluations, and coordination of removal actions across Hickam AFB. For example, identifying areas composed of tuff layers would indicate where specialized remedial investigation and remediation technologies might need to be used.

Aquifer Zones. There are two groundwater aquifers below Hickam AFB as indicated on Figure 4-3. Most of the installation is underlain by a brackish aquifer that is not suitable for commercial, residential, or recreational use. A small portion of Hickam AFB is underlain by a protected freshwater aquifer. (This type of aquifer is subject to more stringent requirements for water quality protection.) Zone classification of these aquifers will identify those sites for which the more stringent requirements apply. These classifications are used during the Risk Based Corrective Action (RBCA) evaluations and have been incorporated into the Air Force Relative Risk Evaluation system.

Figure 4-1 pg. 1

Figure 4-1/2

Figure 4-2/1

Figure 4-2/2

Figure 4-3. Location of Aquifer Zones at Hickam AFB page 1

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4.1.2 Restoration Strategy

The environmental restoration strategy for Hickam AFB currently places emphasis on the following areas:

- Verification and closure of remaining underground storage tanks and abandoned pipelines. A comprehensive program was initiated in 1997 to identify, locate, and remove all ERA eligible POL system components (USTs, hydrants, hydraulic lifts, cesspools, and fuel pipelines). The program also addresses cleanup of petroleum or hazardous substances that have been released from these components at levels posing an unacceptable risk. All ERA eligible components have undergone prescreening (records search, ERA eligibility evaluation and geophysical or other verification method). Plans to close all qualifying components are presented in the *Remediation Management Plan [RMP] for POL System Components (OU-2)* (OHM Remediation Services, July 2001). This RMP is continually updated based on the data that are collected from prescreening, tank removal, and verification sampling activities. Active and inactive non-ERA eligible tanks are managed by the owning 15 ABW organization, and 15 CES/CEVC has responsibility for oversight to ensure compliance with environmental regulations.
- Use of Presumptive Remedy EE/CAs for fuel-contaminated sites and landfills. Presumptive remedies for these sites are addressed in Section 4.2.5.
- Conduct site inspections on uncharacterized sites and AOCs to generate the data required to progress these sites in the IRP process or prepare No Further Response Action Planned (NFRAP) II documentation.
- Characterize the risk to human health and the environment from contaminated sediments, water, and biota in the three major drainage canals on Hickam. These canals are listed as IRP sites and are known to have received releases of petroleum and other hazardous substances over the years of Base operations. The canals receive drainage from other terrestrial IRP sites as well as non-point source runoff from Hickam, and in the case of the Manuwai canal, the Honolulu International Airport, and other off-site storm water discharges.

To support this strategy, the anticipated environmental restoration effort at Hickam AFB in fiscal years 2000-2002 consists of accelerated UST removals, (EE/CA) studies, Interim Remedial Actions (removal actions), treatability studies, remedial investigation of canals, and other projects.

Some of the strategies being developed or implemented are as follows:

- The Runway 8L and HIA EE/CA projects were completed in 1999. These projects led to development of EE/CAs and signed action memoranda for four sites (SS11, ST26, LF14, and OT02). Interim remedial actions are currently underway for these sites.
- As part of the Runway 8L EE/CA project, chemical data for Sites SD02 (Manuwai Canal) and SD03 (Kumumauu Canal) were collected, and a streamlined risk evaluation was performed. Following completion of this effort, a laboratory data quality problem was discovered that is deemed by the Air Force to have made the data invalid for use in decision-making. Initially, the contaminant concentrations were considered to be similar to data collected under prior sampling efforts and therefore the data problem was not detected. A Remedial Investigation/Feasibility Study has been implemented for these

sites to more thoroughly characterize the potential risk associated with contamination in the drainage ways and to determine the appropriate remedy, if required. A similar study is being planned for Site SD04 (Motor Pool Storm Drain) in FY02.

- A Base-wide PCB PA/SI was initiated in FY01 to identify any ERA-eligible PCB releases on Hickam AFB.
- Hydrogeologic conditions and groundwater quality in the central and eastern portions of Hickam AFB are not well understood, limiting Base-wide understanding of the groundwater regime. Data collection and evaluation was performed under multiple projects to compile a Base-wide groundwater hydrology model. As part of that effort, one Base-wide tidal study and one groundwater-surface water interaction study were completed in FY1998. Understanding of the Base-wide hydrology will continue to be refined on an as needed, site-specific basis.
- A Base-wide study is underway (it began in FY01) to identify ambient concentrations of metals in soil and groundwater, and possibly polynuclear aromatic compounds and pesticides in soil, in conjunction with the canal remedial investigation project. This study will help establish a Base-wide context for site specific risk drivers by providing a way to distinguish between those constituents elevated because of natural causes or Base-wide operations and those elevated by site-specific sources.
- The extent that preferential groundwater pathways affect contaminant mobility will be investigated for fuel sites. A better understanding of the role of preferential flow paths, particularly for POL distribution, including fuel vapors, may be gained.
- A comprehensive fuel Spill Site Management Plan is being completed as an addendum to this Management Action Plan. This plan identifies data gaps at fuel spill sites and will lead to a focused data collection effort to assess the need for further response actions.
- A comprehensive historical records search for the Petroleum, Oils, and Lubricants (POL) distribution and storage systems on Hickam was completed in 1997. This effort produced a baseline of information for the multiyear POL system cleanup. A *Remediation Management Plan [RMP] for POL System Components (OU-2)* (OHM Remediation Services, May 1998) was produced to guide POL-related restoration activities. The updated RMP is presented as an addendum to this Management Action Plan (OHM Remediation Services, July 2001).
- An Engineering Evaluation/Cost Analysis (EE/CA) and Action Memorandum have been finalized for fuel recovery using Multi-Phase Extraction (MPX) (in the bioslurping mode) at Site SS01. MPX is ongoing at SS01, and the overall response action is being expanded through installation of four additional MPX systems in 2001 through 2002. Once floating product is removed to the extent practicable, monitored natural attenuation (MNA) with long-term monitoring is anticipated to be the final action for the site.
- A phytoremediation demonstration project is underway at John Rodgers Tank Farm (Site SS13) as a joint effort between the University of Hawaii, USAF, U.S. Army Corps of Engineers (COE), and a contractor (CH2M Hill). The project is evaluating the use of various plants to remediate fuel contamination in subsurface soils at the tank farm. Some Hawaiian endemic and indigenous plants are being evaluated. A unique aspect of the project is the use of this technology in the coastal areas of Hawaii where groundwater is saline. A portion of the evaluation consists of laboratory studies being

performed at the University of Hawaii. Long-term management of the phytoremediation project will become the IRP's responsibility in 2002. The Air Force will determine if funds will be used to continue the project based on data currently being collected.

- Current restoration plans for Site SS13 include the implementation of a limited removal action followed by groundwater monitoring.
- Extraction of recoverable amounts of light non-aqueous-phase liquid (LNAPL) from hot spots at Site SS15 will be implemented during FY2002. This will be followed by MNA, and the process should lead to final site closure. This strategy may include a feasibility study and a proposed plan to establish the final decision for the site.
- Development of program requirements to conduct five-year reviews for sites that were closed with contamination in place to verify that site remedial action decisions are still adequately protective of human health and the environment.

4.2 REQUIREMENTS SUMMARY FOR SITE CLOSEOUT

Requirements for site closeout will vary by site and AOC. Headquarters PACAF has developed policy (10 Oct 2001) that defines site closeout as meaning that written regulatory concurrence has been obtained agreeing that all restoration activities have been completed for a site and no further restoration funds are programmed for the site. All estimated requirements to achieve site closeout for each site are listed in the AFRIMS database and are updated on an as-needed basis. A summary of these requirements is represented in the text and tables of this section.

As defined in *The Environmental Site Closeout Process Guide*¹ (DoD and U.S. Environmental Protection Agency [EPA], September 1999), "site closeout" refers to the point at which the Air Force will no longer engage in active management or monitoring at an environmental restoration site, and no additional environmental restoration funds will be expended unless the need for additional remedial action is demonstrated. The "Environmental Site Closeout Process" refers to the steps in the cleanup process after the cleanup decision has been made, from initiation to completion of remedial action. This guide states that it "is not intended to be a prescriptive document that must be followed explicitly." Its intended use is as a flexible management tool that can be applied to the situations that must be addressed by the RPM for each installation.

Under CERCLA, a site that requires remedial action is typically closed after completing the Remedial Design and Remedial Action (RD/RA) as specified in the site Record of Decision (ROD). Closeout of Hickam AFB sites generally follows the CERCLA model for site closeout, and is designed to be implemented in a manner consistent with CERCLA §120. However, those sites with petroleum contamination only will follow the Hawaii State Contingency Plan (SCP), where applicable.

¹ This guide was developed by a working group comprised of representatives from DoD, U.S. EPA and the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Federal Facilities Base Closure Working Group. Individual site remedial project teams also provided valuable input to the guide. To view or print this guide, visit the website for *The Environmental Site Closeout Process Guide* <<http://www.dtic.mil/cgi-bin/expand.cgi/envirodod/brac/SiteCloseoutGuide/contents>>.

Reaching Site Closeout as defined by DERP and AFRIMS is complicated by the many activities that can remain after a remedy has been selected. These commonly include:

- Operation and maintenance of remediation systems
- Implementing and monitoring institutional controls
- Community involvement
- Performance reviews of remedial systems
- Remedial system modifications or upgrades
- Final Closeout Reports
- Long-term monitoring
- Cleanup system and monitoring well decommissioning
- Five-year reviews

As an added layer of complexity, sites at Hickam AFB are employing the Superfund Accelerated Cleanup Model (SACM) and undergoing interim removal actions as an outcome of EE/CA and Action Memorandum decision documents. (See *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*, EPA, August 1993.) Interim removal or remedial actions do not qualify as the final decision for a site following the CERCLA process. However, the approach to implementation of EE/CAs at Hickam AFB has been fairly robust in nature and may, in some cases, be considered to qualify as the basis for a final action decision (and subsequent site closeout) with HDOH concurrence.

The primary mechanism for documenting the site closeout phase of the IRP process is the NFRAP report. NFRAP reports are used both for the conventional and the SACM CERCLA processes. A NFRAP report may be prepared at various stages during the response/removal action process, as summarized below:

- **Category I NFRAP decisions** are based on the results of a PA, a PA supplement, or an equivalent effort after a determination that no storage (for >1 year), release, or disposal of hazardous substances or petroleum products or their derivatives has occurred in the area being assessed (including no migration of these substances from adjacent properties). If such a determination is made, the area is classified as an *area of no suspected contamination* (ANSC), and a Category I NFRAP decision can be made.
- **Category II NFRAP decisions** are based on the results of an SI, an SI supplement, or an equivalent effort after a determination that storage (for >1 year) and release, release, disposal, and/or migration of hazardous substances or petroleum products or their derivatives has occurred, but at concentrations below **risk screening levels** that do not require a remedial response. If such a determination is made, the area is classified as an *area below action levels* (ABAL), and a Category II NFRAP decision can be made.
- **Category III NFRAP decisions** are based on the results of an RI (and FS if required) or an EE/CA after a determination that storage and release, release, disposal, and/or migration of hazardous substances or petroleum products or their derivatives has occurred, but at concentrations that do not require a removal or remedial action based on the results of a **baseline risk assessment**. If such a determination is made the area is classified as an ABAL, and a Category III NFRAP decision can be made.

- **Category IV NFRAP decisions** are based on the implementation of a removal action or remedial action (including interim actions), or an equivalent effort, after a determination that all actions necessary to protect human health and the environment have been implemented and completed. If such a determination is made, the area is considered as having achieved completion status, and a Category IV NFRAP decision can be made.

Using this Environmental Site Closeout Process, the restoration project team (including representatives from the Air Force and state regulatory agencies such as HDOH), working together with other stakeholders, can make knowledgeable decisions about the most effective manner of integrating and applying these requirements at specific sites.

4.2.1 Past, Planned, and Ongoing Removal/Remedial and Interim Actions

Planned and ongoing removal/remedial and interim actions at Hickam AFB are summarized in Table 4-1. In general, interim and final remedial activities are organized by OU. As additional data are gathered, leading up to a remedial action, the organization of these operable units and the types of activities that are projected to occur may change. In addition, programmed schedules are routinely impacted by budget reductions, which result in periodic shifting of priorities to accommodate the availability of funds. Schedules presented in Table 4-1 are likely to undergo changes based on continued changes in funding availability and USAF priorities.

Several removal actions and treatability studies have been concluded at Hickam AFB or are currently in progress. The most significant actions are described in this section.

Floating Product Removal: At Site SS01, fuel recovery well systems were first installed in approximately 1985. The effectiveness of the recovery systems was highly variable, ranging from virtually no product recovery in one system to an average fuel recovery rate of over twenty gallons per day. Four of the dual phase recovery systems were converted to fuel skimmers in 1994 and two of the systems were taken out of service. Currently, skimming operations have been discontinued because of low recovery rates and high operational costs. The skimmer systems were removed in 2001. One skimmer site, near the Burger King restaurant, is being converted to an MPX site to treat the area.

Bioslurping: Since 1995, several bioslurping pilot tests were conducted at Site SS01. A full-scale bioslurper test commenced in March 1997 using 12 wells installed under the BXtra prior to construction of the building. To date, the bioslurper has removed or destroyed over 30,000 gallons of AVGAS. Preliminary pilot test results were documented in the *Final Report for Evaluating the Potential for Recovering Light, Nonaqueous-Phase Liquid Using Bioslurping Technology at Hickam Air Force Base* (Battelle, 1998). The report concluded that the bioslurper system proved an effective method for removing hydrocarbons from the subsurface at SS01, through free-product recovery, soil-vapor extraction, and biodegradation. Operational time could be improved markedly by employing a more reliable method of vapor treatment. Alternative vapor treatment systems are being evaluated on an ongoing basis, and an EE/CA has been finalized to implement a full-scale removal action at Site SS01. A second bioslurper (MPX) system employing a thermal oxidizer for vapor treatment is being installed in the area of the Burger King in 2001. Three additional bioslurp systems will be installed in 2002 throughout the SS01 area. Long-term remedial activities will include continued fuel recovery to endpoints agreed upon with the State of Hawaii, MNA, and long-term monitoring.

TABLE 4-1
Planned and Ongoing Removal/Remedial and Interim Actions

Operable Unit	Sites	Strategy
OU-1 Drainage canals	SD02, SD03, SD04	Sites are programmed for remedial action FY03-06. Remedy is estimated to consist of lining the channels to prevent exposure. RI/FS for these sites will determine actual risks and appropriate remedies. Risk assessment for Site SD03 suggests NFRAP may be appropriate.
OU-2 POL system components	ST01, ST20, ST28, ST29, ST30, ST31, ST32, ST33, ST34, ST35, ST38	Sites consist of multiple subsites (USTs, fuel pipelines, hydrants, valve pits, etc.). Sites are programmed to undergo interim actions to remove all tanks and perform verification sampling. Following the interim actions, risk screening evaluations and presumptive remedy EE/CA documents will be produced to determine the final remedial actions for cleanup of any remaining contamination. This is a dynamic multiyear program.
OU-3A Accelerated-schedule POL-contaminated soils (with only minimal or incidental groundwater contamination).	SS13, SS15	Prior remedial actions have been implemented at both sites. Removal actions are planned to begin in FY02. Sites will undergo further limited removals then undergo groundwater monitoring and MNA to reach site closure.
OU-3B Fuel spill sites without floating product	SS06, SS08, SS09, SS10, SS12, SS25	Sites are currently programmed for RA in FY03. Schedule is subject to availability of funds.
OU-4 Groundwater plumes with floating fuel product	SS01	Fuel recovery activities programmed to occur through 2011. In 2004, an FS is planned to use data collected up to that point to develop a final remedy. In 2005, a RA is planned to implement the final remedy estimated to consist of MNA coupled with ongoing fuel recovery operations. A combination of IRA and LTM is programmed through 2020.
OU-5 Source control areas	LF01, LF05, LF17, SD19, SS24	Sites within this operable unit are not programmed together due to the variety of types of sites and extent of prior investigations. LF01 and LF17 are programmed together for RA to occur in 2006. LF05 is programmed for RA to begin in 2003. SD19 is programmed for RA in 2009 and SS24 is programmed for RA in 2011.
OU-6 Sites on, or adjacent to, Runway 8L	LF14, OT02, SS11, ST26	Activities to implement interim remedies at sites LF14, OT02, and ST26 have been completed. SS11 will require fuel recovery operations and MNA. While these technologies are believed to be the final remedies, activities to recover fuel and perform MNA are programmed through 2010.

AOC Area of Concern
 EE/CA Engineering Evaluation/Cost Analysis
 FY Fiscal Year

PA/SI Preliminary Assessment/Site Inspection
 RA Remedial Action
 RI/FS Remedial Investigation/Feasibility Study

LTM Long-Term Management
MNA Monitored Natural Attenuation

UST Underground Storage Tank

Bioventing Pilot (Treatability) Test: Engineering Science, Inc., performed a bioventing pilot test at Areas H and K (Sites SS01 and SS15, respectively) on Hickam AFB. The report concluded that bacteria indigenous to the Oahu subsurface soils are capable of aerobically degrading petroleum hydrocarbons in situ. However, some difficulties with oxygen distribution in rock (SS01) were encountered. The cost of remediation is expected to be competitive with other technologies, although the time required to remediate will be longer than ex-situ methods. Although at present the pilot test bioventing units are not being operated, 15 CES/CEVR recognizes bioventing as a highly effective remedial technology for fuel contamination in the soil vadose zone and plans to consider use of the technology as a presumptive remedy, where applicable.

Drum Removal/Disposal Projects: In 1994, 611 CES of Elmendorf AFB, Alaska, contracted for the removal of 99 improperly disposed drums from Fort Kamehameha. This removal effort focused on Sites SD36 and SD37 and included areas near the chapel, the EOD area, and the John Rodgers Tank Farm area. Sites SD36 and SD37 are located on what was formerly Fort Kamehameha in the south-central and southeastern areas of Hickam AFB, respectively. Most of the drums were empty and in various stages of structural decay. Samples were collected beneath the drums and drums were triple rinsed, crushed, and recycled. Three drums with waste contents were sampled and disposed of at the Defense Reutilization and Marketing Office (DRMO).

Again in 1995, Sites SD36, SD37, and also LF17 located on a remote portion of Hickam, adjacent to Honolulu International Airport (HIA), were identified as containing numerous improperly disposed drums that could contain hazardous or potentially hazardous materials. EA Engineering, Science, and Technology, Inc. was contracted to remove and dispose of the drums and to perform a limited site investigation at these sites. Two drums at Site SD36 and five drums at Site SD37 were removed and the contents disposed of. Approximately 50 drums were removed from Site LF17. The removal action was completed in summer 1996. The Final Multi Drum Removal Report was submitted in June 1998.

John Rodgers Tank Farm: 15 CES/CEVR, with the assistance of 611 CES/CEOR of Elmendorf AFB, Alaska and the HDOH, conducted a Site Investigation/Limited Source Removal at Site ST27, John Rodgers Tank Farm, during October 1993 to July 1994. John Rodgers Tank Farm was constructed during the early 1940s to supply fuel to Navy seaplanes. Responsibility for the tank farm was transferred to the USAF for the storage and distribution of aviation gasoline and JP-4 jet fuel. This project is documented in *Field and Analytical Report, Site Investigation/Limited Source Removal, John Rodgers Tank Farm, Hickam AFB Hawaii*, (USAF 611 CES/CEOR, 1994).

The project consisted of the collection of several hundred soil samples and the removal of a 1.3 million-gallon steel AST, two 50,000-gallon USTs, three 10,000-gallon steel tanks, two 500-gallon steel tanks, and 7,000 linear feet of 8-inch fuel pipeline. The majority of materials were recycled. In addition, 63,130 gallons of aviation fuel were filtered, transported, and disposed of through the Hickam AFB Fire Department.

Excavations from the tank removals were backfilled with clean soil and brought to grade, providing a cover for the contaminated soils. This was done to retard vaporization and prevent dermal contact and ingestion. Percolation and leaching of the residual contamination in the soil are the remaining release pathways (USAF 611 CES/CEOR, 1994).

Runway 8L Interim Remedial Action: In FY97 a project (Runway 8L EE/CA) was initiated to characterize IRP sites and AOCs adjacent to Runway 8L. The Runway 8L project was completed in 1999. This project led to development of EE/CAs and signed action

memoranda for four sites (SS11, ST26, LF14, and OT02). Interim remedial actions have been initiated for these sites. All work was finalized at ST26 and a NFRAP document was completed.

4.2.2 Planned and Ongoing Long-Term Management and Site Closeout:

This section describes the nature and extent of long-term management (LTM) and site closeout actions. Discussion of activities is organized in operable units (OU).

- OU-1: RI/FS has not been completed for sites SD02 and SD04 in this OU and final remedies have not been selected. The RI for SD03 has been finalized and no further action is the recommended outcome. A Category III NFRAP is proposed for SD03. Assuming no other actions are required for SD03, site closeout will be achieved.
- OU-2: POL System Components: LTM activities have not been initiated for USTs or other components within this OU. Each component (USTs, pipeline segments, hydrants, etc) is being individually closed with signed closure documents and a NFRAP will be produced for each site within this OU when all components are closed. Current assumptions are that any contamination that is identified will be addressed under a removal action or interim remedial action such as bioventing or MNA and some LTM will be required for a five-year period with subsequent five-year reviews after the cleanup activities are completed.
- OU-3A: A current estimate is that the two sites within this OU subset will undergo remedial actions followed by five years of groundwater monitoring. Recently collected data for these sites are currently under review.
- OU-3B: The assumption for these sites is that final remedies will consist of MNA, which is classified as remedial action operation (RA-O) with closure documentation produced after five years of monitoring. The exception is site SS12, where assumption is made that site will be closed after a limited PCB removal.
- OU-4: Site SS01 is currently programmed for multiple years of fuel recovery and MNA, through 2020, when site closeout is projected to occur. It is highly unlikely that all fuel can be recovered without extraordinarily high costs due to the non-homogenous nature of the subsurface formations. Thus, MNA is planned after fuel recovery efforts have been completed to the extent practical. A feasibility study (FY04) and an RA (FY05) are planned toward implementation of the final remedy for the site. The site cost to complete and schedule will be updated as additional data are gathered to support the final remedy for this site.
- OU-5: This "source control" OU consists of multiple sites with schedules and phases that do not coincide. Requirements are discussed by site as follows:
 - LF05 is programmed for an interim remedial action, followed by multiple years of LTM to inspect the landfill cover. The extent of LTM is set until 2020, but will ultimately be determined by the EE/CA and subsequent activities at the site.
 - LF01 and LF17 are currently in the RI scoping phase, but are not programmed to undergo LTM. The RI work plans are currently being developed and RI activities are programmed to begin in FY03. NFRAPs are planned after completion of RA-O activities.

- SD19 is programmed for remedial action and operation, followed by five years of LTM. Few data points exist for the site, and the site objectives will be refined after data are obtained.
- SS24 is programmed for remedial action and operation. The NFRAP will then be developed, followed by seven years of LTM. Few data points exist for the site, and the site objectives will be refined after data are obtained.
- FT07 - completed NFRAP.
- SD36 and SD37 - completed NFRAP for SD36. Completion of NFRAP for SD37 expected by close of 2001.
- OU-6: LTM activities for groundwater were initiated in FY00 for sites SS11 (northern portion of site), OT02, and LF14. For OT02 and LF14, LTM is anticipated to be the final action, and the necessary documentation of RIP and State HDOH concurrence on the final remedies must be completed for both sites. A NFRAP will be developed for SS11 following completion of interim actions (fuel recovery and MNA) in the southern portion of the site. A NFRAP Report has been completed for Site ST26. The other sites within this OU have completed NFRAPs.

4.2.3 Short-Term Strategy and Goals for Optimizing Site Closeout: (FY 2001 - FY2003)

Hickam AFB's restoration program has the following short-term goals:

- Continue source removal at SS01, SS11, SS13, and SS15 to implement removal actions while collecting MNA data to demonstrate the effectiveness of degradation and to determine degradation rate constants.
- Evaluate community and agency acceptance of NFRAP for Site SD03 and finalize NFRAP to achieve Response Complete and Site Closeout, if appropriate.
- Determine final remedies for Sites LF14 and OT02.

To achieve these short-term goals, the IRP Project Team plans to pursue the following strategies:

- Will continue to collect MNA data at fuel-spill sites (SS01, SS11, SS13, and SS15).
- Will provide public notice in local newspaper of plan to complete the NFRAP process for Site SD03.
- Will seek HDOH concurrence for final remedies on LF14 and OT02, with ongoing LTM requirement.

4.2.4 Long-Term Strategy and Goals for Optimizing Site Closeout: (FY2004 - Program Completion)

Hickam AFB's restoration program has the following long-term goals:

- Complete study phase for all sites by FY10

- Complete SI for all AOCs by FY08
- Complete remediation for all sites by FY20
- Complete remediation of AOCs by FY21

To achieve these long-term goals, the IRP Project Team plans to pursue the following strategies:

- Review existing data and develop NFRAP documents for those sites that qualify for closure.
- Continue to close UST components and target closeout of "ST" sites to meet Defense Planning Goals (DPGs).
- Continued coordination with HDOH and other stakeholders to develop mutually acceptable site closeout requirements.
- Continued development of geographic information system (GIS) tools to map and evaluate Base-wide background levels and represent site data.
- Expedite Site Inspections of AOCs when funding is available. For those AOCs lacking data, collect sufficient data to determine if they qualify for NFRAP and produce the required documentation, if applicable.
- Refine Base-wide (e.g. background) levels of certain hazardous substances (such as benzo(a)pyrene and arsenic) that are often detected on Hickam AFB at levels above HDOH Tier 1 Soil Action Levels or U.S. Environmental Protection Agency (EPA) Region IX Preliminary Remediation Goals. Further analysis of existing data for these substances in a manner acceptable to HDOH may allow for streamlining of risk characterizations through the elimination of some contaminants. These contaminants may be present at ambient anthropogenic levels throughout the Base, but they are likely, in many cases, to be unrelated to site activities under investigation in the IRP.
- Use of AFCEE's LTM Optimization protocol to streamline requirements.
- Use state-of-the-art technologies, where applicable to address persistent compounds and the extensive fuel plume at Site SS01.

4.2.5 Remedy Selection Approach

Determination of cleanup levels at contaminated sites is addressed in an HDOH guidance manual entitled *Risk-Based Corrective Action (RBCA) and Decision Making at Sites with Contaminated Soils and Groundwater* (1996). Soil cleanup standards are addressed in three tiers of classification, depending on site conditions and extent of contamination. Specifics of the tiered approach to selection of cleanup levels are presented in Section 6.5.3. Guidance to determine cleanup levels is also found in the EPA Region IX Preliminary Remediation Goals (PRGs). Both HDOH and EPA cleanup level selection methods will be used at Hickam AFB.

Remedial actions are selected using a process that screens candidate technologies for performance with respect to a number of cleanup objectives. The top candidates are then

compared to identify the most cost-effective technology that can be used to complete the action in a timely manner. Future remedial selections emphasize the use of presumptive remedies, where appropriate, to support this priority. Interim remedial actions are preferentially employed to accelerate risk reduction. The SACM of site remediation provides guidelines for the process. SACM outlines the use of the Engineering Evaluation/Cost Analysis (EE/CA) to expedite the study phase and remedy selection. SACM provides for early action either through the non-time critical removal action where EE/CA and Action Memoranda are prepared or through interim remedial actions where an RI/FS is conducted and an interim action ROD is prepared. EE/CAs have been finalized for seven sites at Hickam (LF14, ST26, SS11, OT02, SS01, SS13, and SS15). In addition, a site characterization to support development of an RI/FS for Site LF05 is currently underway.

Technologies most applicable to the environmental restoration effort at Hickam AFB are those considered as presumptive remedies by the USAF, or are widely accepted as effective remedial approaches for petroleum contamination. Presumptive remedies are preferred technologies for common categories of sites based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation.

Presumptive remedial technologies applicable to the cleanup of petroleum-contaminated groundwater and soil are free product recovery (from groundwater), in situ bioventing, bioslurping, soil vapor extraction, and containment. Other viable and cost effective treatment methods are soil vapor extraction and ex situ bioremediation (landfarming) for petroleum-contaminated soils, and air sparging, intrinsic remediation and containment (pump and treat) for fuel-contaminated groundwater. Excavation and disposal in permitted landfills, although simple to implement, is either not available in Hawaii or too expensive for serious consideration in most cases. Containment is considered a presumptive remedy for military municipal landfills.

All remedies require either a peer review or a peer review waiver prior to approval for funding by HQ PACAF/CEVR. A peer review waiver is granted for an action that is a "proven remedy." A proven remedy is a technology that has been documented to achieve cleanup levels protective of human health and the environment according to a signed decision document for that site.

Remedial technologies considered to be presumptive remedies for use at Hickam AFB are described below.

Product Recovery. Product continues to collect in recoverable quantities in wells at Site SS01. Due to the capillary rise of fuel in the fine-grained soils found at many Hickam AFB sites, the thickness of fuel that may collect in monitoring wells is not an accurate indicator of the true depth of floating fuel product in the soil. In fine-grained soils, product depth in the soil may be five to ten times less than indicated in a monitoring well. Sites that have one foot of product in monitoring wells may have less than an inch or two of fuel in the soil. A bioslurping pilot test at Site SS11 has been completed and full-scale implementation is underway.

In Situ Bioventing. The use of air as a medium to contact and remove VOCs has been used extensively in soil vapor extraction systems. Soil venting methods have been extremely effective in removing light distillates such as gasoline from sandy and silty soils. The major disadvantage of standard soil venting practice is that VOCs are either transferred directly to the atmosphere or must be treated with expensive emission control devices such as catalytic incinerators or activated carbon. Most recently, air injection and

extraction systems have been used to create the aerobic (oxygenated) conditions required for in situ biodegradation of fuel residuals. This concept, known as bioventing, uses much lower airflow rates and produces only a fraction of the VOC emissions of standard soil venting.

Bioslurping. A recent modification of bioventing is bioslurping, which achieves simultaneous removal of free product while stimulating vadose zone remediation. By drawing a vacuum on a specially screened well, the free product is pumped to the surface into a separation and storage tank. The vacuum induces airflow through the vadose zone and stimulates the aerobic conditions of bioventing as described above.

Containment. Construction and other measures used to control or prevent the migration of wastes or leachate from abandoned landfills may include: construction of a cap (typically RCRA Subtitle C or Subtitle D design), a gas venting system, water runoff control, monitoring wells, and institutional controls. Containment as a presumptive remedy at military installations is addressed in EPA Directive No. 9355.0-62FS, Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance).

Other technologies and administrative solutions to remediate or control petroleum-contaminated soil and groundwater that will be considered at POL-contaminated sites are discussed below.

Soil Vapor Extraction. A remedial option used to remove VOCs from soils in the vadose zone (typical application) or from stockpiled, excavated soils. The soil vapor extraction (SVE) process consists of passing an air stream through the soil, thus transferring the contaminants from the soil (or soil/water matrix) to the air stream. SVE systems typically include “knockout” drums to remove moisture from the soil gases followed by vapor phase treatment prior to discharge to the atmosphere. System construction typically includes the following components: vapor extraction wells; impermeable barrier on the surface to prevent short-circuiting of air flow from the surface; air recharge wells to enhance the movement of soil gases; a compressor to force air into the recharge wells; vacuum pump(s) to extract air from the soil column; and knockout drums and carbon adsorption system as needed to process the extracted air. SVE can be combined with bioslurping to enhance system performance and provide flexibility in application of technologies through the cleanup process.

Ex Situ Bioremediation. This is particularly applicable for small quantities of contaminated soil near the ground surface, although *ex situ* remediation of either deep contamination or large quantities of soil is possible. Soil is excavated and placed on a bermed, sealed surface. Nutrients and moisture are added to optimize biodegradation rates and the contaminated soil is tilled to promote mixing and aeration. Another aboveground treatment method is to place soil in covered piles and supply oxygen via air injection pipes. This method greatly reduces VOC emissions to the atmosphere and can be accomplished *in situ*. *In situ* bioremediation may not be appropriate for the large fuel spill sites but may work well for UST remediation.

Air Sparging. Air sparging is a relatively new technology for removing volatile hydrocarbons and solvents from shallow groundwater. Small air bubbles are used to remove VOCs from groundwater and transfer them to the vadose zone. A grid of sparging wells is placed within the most concentrated portion of the groundwater volume and high-pressure air is injected through the wells into the aquifer. In the vadose zone, the VOCs can be biodegraded (if biodegradable) by *in situ* bioventing systems. In some cases the sparging wells alone can be used to distribute oxygen upward through the vadose zone, negating the need for vent wells and a separate blower supplying bioventing air. Air

sparging can only be used in aquifer materials with relatively high permeability such as sands and coral formations, and its effectiveness can be limited to very small areas around each air sparging well. For this reason only, Sites SS06, SS08, and SS12 have appeared to be candidates for this groundwater remediation method. The success of sparging in silts, clays, and tuff is unlikely.

Intrinsic Remediation (Monitored Natural Attenuation). Much of the shallow, non-potable groundwater aquifer contains low concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX), which appear to pose little or no risk to human health or the environment. An important risk consideration is the potential for natural biodegradation in groundwater of the BTEX compounds. The rate of natural biodegradation is generally limited by the availability of dissolved oxygen and macronutrients, which are rapidly depleted near the center of a spill. Oxygen is available on the perimeter of a BTEX plume and from the atmosphere by diffusion through the vadose zone. Hence, BTEX compounds biodegrade naturally over time as they migrate from the spill center. Biodegradation can be estimated with models such as Bioplume™ and AFCEE's Bioscreen. This model was developed and tested under EPA supervision and is the standard for modeling fate and transport of fuel compounds in groundwater. Although regulatory agencies require continued monitoring of groundwater wells to validate model predictions, the cost of long-term monitoring offers tremendous savings over standard pump and treat cleanup options. The State of Hawaii Department of Health published guidelines for natural attenuation monitoring in a policy update entitled: *Monitored Natural Attenuation for Dissolved Phase Petroleum Hydrocarbons in Groundwater at Concentrations above Hawaii Department of Health Tier I Action Levels* (Oct 1998). The HDOH considers monitored natural attenuation (MNA) acceptable when "an adequate demonstration of its occurrence, effectiveness as a suitable remedy, and its protectiveness of receptors can be made."

Groundwater Containment. Groundwater containment (pump and treat) remedies are typically preferred when hydraulic control of a groundwater plume is required in order to prevent or reduce risk to human or ecological receptors at the plume boundary. It consists of placing groundwater extraction wells or interceptor trenches at the plume center and/or along the plume perimeter to control the movement of contaminants in groundwater. Due to inefficiencies of the pump and treat process, and the significant expense of treating extracted groundwater, groundwater containment is generally not a cost-effective long-term solution for remediation of groundwater. This presumptive remedy will likely only be employed at Hickam AFB in the event that it is required as an IRA to mitigate immediate risks to human health and the environment.

4.3 COMMUNITY INVOLVEMENT STRATEGY

The Community Relations Plan (CRP) identifies the following community involvement objectives that are specific to Hickam AFB:

- Keep the public informed and involved by supplying information that addresses community concerns in a timely manner.
- Enlist the support and participation of local elected officials and key community leaders in coordinating community relation efforts.
- Educate area residents and officials about the procedures, policies, and requirements of the 15 ABW environmental restoration program.

- Build rapport with the nearby communities and let people “set the pace” for the community relations program.
- Interview community members to identify important issues and concerns.

The CRP identifies the following preliminary initiatives:

1. Prepare newsletters and fact sheets for distribution to Neighborhood Boards, Chambers of Commerce, community groups, and schools.
2. Enlist the support of the four Neighborhood Boards (18, 19, 20, and 21). Request time on the agenda of Neighborhood Board meetings, give brief presentations, and hand out newsletters, fact sheets, and other materials as necessary.
3. Be available to deliver presentations to students, parents, and teachers at their schools. Use posters and videos to support presentations.
4. Hold public meetings or open houses in the community at local schools at key points in the cleanup investigation and cleanup process.
5. Establish an information repository at a local library.
6. Establish a Restoration Advisory Board [RAB] with community participation as soon as possible.

To achieve these initiatives, 15 CES/CEVR solicited community participation in the informational RAB meeting. Fact sheets, newsletters and video/slide presentations have been provided at public meetings and disseminated to neighborhood boards and other stakeholders

RAB minutes and public information have been forwarded to the neighborhood board chairpersons and several members have been contacted. No presentations have been made at the board meetings to this date. The Environmental Restoration Program has provided numerous briefings to schools and has staff ready to provide briefings on request.

An informational RAB meeting was held in October 1996, followed by the RAB orientation meeting in January 1997 and first official RAB in February 1997. RAB meetings are currently being conducted quarterly.

An administrative record has been established and is being maintained at several information repositories on the island of Oahu.

Revisions to the Community Relations Plan are currently being conducted on a project-specific basis.

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5. ENVIRONMENTAL PROGRAM MASTER SCHEDULES

5.1 ENVIRONMENTAL RESTORATION SCHEDULE

Figure 5-1 presents the currently projected Hickam AFB master schedule for future environmental restoration activities. In general, these forecasted schedules are worst-case scenarios based on limited data. Schedules to complete may be shortened if investigative sampling results do not indicate complex cleanup actions.

The schedule has been developed with consideration to relative risk ranking, funding, and the Defense Planning Guidance (DPG) goals that establish priorities and schedules for having remedies in place at all IRP sites. These goals are discussed in Section 6.5.1. Assuming full funding and no changes in relative risk ranking, sites are anticipated to meet the DPG goals.

5.1.1 The CERCLA and DoD Site Closeout Processes and the Master Schedule

The closeout of sites under CERCLA follows the process defined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 CFR 300, in related EPA CERCLA (Superfund) guidance documents, and in the Hawaii State Contingency Plan (SCP) as described in Section 4.0 of this MAP. However, there are significant differences between requirements that apply at non-National Priorities List (non-NPL, also known as non-Superfund) DoD installations (such as Hickam AFB, where the USAF is the lead agency) and the requirements for Superfund sites (where the EPA is the lead agency).

As there is some flexibility for non-NPL DoD installations, the applicable phases and milestones are determined by the Hickam RPM, with input from the HDOH and other stakeholders. Additionally, under the SACM, the RI/FS and Record of Decision phases can be replaced by the EE/CA and the Action Memorandum reports in order to expedite and streamline site cleanup through the non-time-critical removal action process (*Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*, EPA, August 1993).² This is discussed in more detail in Section 4.0 of this MAP.

5.2 PROJECT TEAM AND RESTORATION ADVISORY BOARD MEETING SCHEDULES

Project Team meetings are held on an as-needed basis.

An informational RAB meeting was held in October 1996, followed by the RAB orientation meeting in January 1997 and the first official RAB in February 1997, when the Community Co-Chair was elected. RAB meetings are to be held on a schedule developed jointly between the community co-chair and military co-chair. The Hickam RAB meetings have been held on a quarterly basis during calendar year 2001, and quarterly meetings are likely to continue in FY02. Ideas for future meeting agenda items include the following topics:

² On the Master Schedule, when the SACM process is being employed and the RPM believes the Removal Action will likely be the final action, it is portrayed in AFRIMS as following the traditional CERCLA process. This is because AFRIMS phases do not include SACM phases that take advantage of the ability to use more robust EE/CAs and resulting Removal Actions that are streamlined yet capable of fully addressing site risks.

- Primary deliverable schedules
- Project status and results
- Field sampling plan requirements
- Relative risk methodology and site rankings
- Data quality objectives requirements
- Community relations program development
- Site characterization objectives
- Evaluation of additional areas of the installation for suspected contamination

Figure 5-1 Projected Restoration Master Schedule Hickam Air Force Base

Figure 5-1 Projected Restoration Master Schedule Hickam Air Force Base (2nd page etc.)

6. TECHNICAL AND OTHER ISSUES TO BE RESOLVED

This chapter summarizes technical and other issues that are yet to be resolved. These issues include data usability, integration, and management; conceptual models and data gaps; background levels of contaminants; risk assessment protocols, future land use, and cleanup standards; relative risk evaluation; and contracting strategy.

6.1 DATA USABILITY, INTEGRATION, AND MANAGEMENT

6.1.1 Issues

Data availability and use: It is required that historical and future environmental data collected under CEVR projects be loaded into the Environmental Resources Program Information Management System (ERPIMS), formerly known as the Installation Restoration Program Information Management System (IRPIMS). ERPIMS was developed and is maintained on a UNIX server at AFCEE (Brooks AFB, Texas). ERPIMS is the primary database used by the 15 CES/CEVR GIS. In addition to visualization and management of the ERPIMS data through GIS, use of analytical and geophysical data from earlier studies and investigations is useful in developing site conceptual models and risk assessments by filling in data gaps. It is important that data be accurate and accessible for consistent management and decision-making. These data exist in a wide range of quality and levels of validation and in some cases, historical data do not meet standards required for the desired uses. For various reasons, data from some projects have not been loaded into the database. The Project Team is assessing the usability of historical data and in some cases is loading these data into the ERPIMS.

With the assistance of the AFCEE/MS, the ERPIMS database has been linked to ArcView (a GIS program software) through an ArcView extension called PetroView. PetroView connects the ArcView user to the database through use of pre-defined queries. The 15 CES/CEVR team can view ERPIMS data that are plotted on installation thematic maps and query the data to evaluate a variety of parameters useful in making environmental decisions. The GIS is also useful in communicating environmental data to regulators and the public. The accuracy of data in ERPIMS and the thematic mapping are essential for making the GIS a truly useful tool. Additional databases require development with common fields that will allow for linkage with ERPIMS tables and these databases must comply with the TriServices Spatial Data Standards.

6.1.2 Resolution

The following actions are being taken to improve the usability of historical and future data sets and allow for use of the data in the 15 CES/CEVR GIS:

- Identify and prioritize historical data sets and review the ERPIMS database to assess the loading status of historical analytical data.
- Historical data are being loaded into ERPIMS on a project-specific as-needed basis.
- Beginning in 2000, location coordinates for all sample points (known as LOCIDs) have been shifted in ERPIMS to North American Datum (NAD) 83 in an effort to standardize and update the data for use in GIS applications.

- Previously collected analytical data are being compared on a project-specific basis against accepted validation procedures.
- 15 CES/CEVR has adopted, where reasonable, standard sample Quality Assurance/Quality Control (QA/QC) procedures specified by the project sampling analysis plan (SAP), Quality Assurance Project Plan (QAPP), and AFCEE laboratory QC guidelines for all sample collection and data analysis.

At present, the GIS consists of ArcView 3.2, a SQL-net link with the ERPIMS database, and georeferenced MicroStation drawings (*.dgn) portraying the Base map and various environmental themes. With the assistance of HQ AFCEE/MS staff, efforts are being made to accomplish the following items:

- Develop a dependable SQL-net linkage with the ERPIMS database. Base firewall security measures have historically hampered these efforts. The alternative currently being employed is for HQ AFCEE to periodically send database content updates via CD-ROM.
- Review ERPIMS data (e.g., lithologic information, sampling coordinates, chemical concentrations, validation information) for accuracy and provide corrections where necessary.
- Ensure that all mapping and database development is conducted in accordance with the Tri-Services Spatial Data Standards.
- POL system component information is extremely useful in evaluating the status and condition of the OU-2 program and individual subsites. 15 CES/CEVR, HQ AFCEE, and IT Corp have developed a database to house these data. Each component is being assigned a LOCID and spatial coordinates are associated. The LOCID is then entered in ERPIMS to allow for linkage of data from the two databases.
- Mapping requirements are being standardized. MicroStation is the 15 CES standard program for Computer Aided Design. The TriServices Spatial Standards must be followed in all mapping.
- To ensure compatibility with GIS/ERPIMS database, all data from future IRP projects will conform to guidelines in the ERPIMS Data Loading Handbook. Data will be submitted to the Air Force in ERPIMS, and loaded directly into the GIS. To promote the successful development of GIS/ERPIMS, the Project Team will ensure that the appropriate historical data are loaded into the database as soon as possible. This is critical to allow all users to understand the environmental restoration effort at Hickam AFB in context of past characterization and remediation efforts.

6.2 CERCLA WASTE MANAGEMENT

6.2.1 Issues

Disposal of CERCLA Wastes: CERCLA dictates that wastes from sites managed under CERCLA must be disposed of properly at CERCLA-approved facilities. A petroleum exemption exists for CERCLA. Compounds such as polynuclear aromatic hydrocarbons (PAHs) that are derived from petroleum are not exempt because they are a byproduct of

use of petroleum products. Theoretically, any CERCLA detection of any listed hazardous substance other than petroleum, regardless of the concentration, requires that disposal be preferably done either on-site, or at a CERCLA-approved facility. The lack of CERCLA-approved facilities for disposal in Hawaii necessitates disposal at such facilities on the mainland U.S. at a very high cost for transportation and handling, in addition to disposal fees. Certain landfills on Oahu are evaluating acceptance of certain CERCLA wastes on a case-by-case basis, but no consistent policy or approval for receiving CERCLA wastes is being provided. This affects budgeting, planning and implementation of projects at Hickam AFB.

One of the primary issues currently being addressed relates to the lead content of the fuel product being extracted from the subsurface plume at SS01. The current disposal mechanism utilizes thermal destruction and heat recovery, but with no particular emission controls at the facility. Engineering calculations have shown the resulting air emissions for particulate lead to be less than applicable regulatory thresholds, but long-term liability issues may necessitate sending the fuels to a facility with effective emission control devices. This procedure would also alleviate any long-term liabilities for the Air Force as the waste generator.

Another critical issue involves the cost of recycling fuel product recovered from subsurface fuel plumes, particularly Site SS01. AVGAS from SS01 is classified as a product and is currently recycled through a subcontractor to the prime contractors working at the site. Its end use is for energy production in boilers after it is blended with other fuels for sale as a fuel product through a company in California. Alternate use of the recovered fuel is also being considered where it will be used to power electric generators for power production. A pilot test for evaluating this reuse approach is planned in late 2001. QA/QC of this use requires that fuel be analyzed for possible contamination to ensure that the fuel meets the qualifications for recycling. If contaminants enter the fuel, it may become unusable for continued recycling which may dictate that it must be handled as hazardous waste, thus greatly increasing the cost for disposal. Careful management of this process is required to ensure that the fuel is being properly used.

6.2.2 Resolution

15 CES/CEVR is tracking development of on-island CERCLA approved disposal facilities. An exemption for the disposal of petroleum waste exists under CERCLA. Waste minimization efforts are essential and are an integral part of each project's waste management plan. Soil and groundwater with concentrations below State and Federal action levels (HDOH Tier 1, EPA Region IX PRGs, and Ambient Water Quality Criteria) may be disposed of on-site. Management of large volumes of soil or water is problematic, as land is a valuable resource on Hickam AFB. On-site landfarming is currently being employed for petroleum soil. Two landfarming cells have been constructed at the John Rodgers Tank Farm. Other treatment options will be an important consideration for future projects.

Procedures are being developed for consistent testing of fuel prior to disposal. Applicable regulations are being researched to ensure that waste and product management procedures comply with all applicable statutes. In addition, the Air Force has contractual procedures that require contractors doing work for 15 CES/CEVR to comply with environmental regulations and must ensure that their subcontractors are notified of all hazardous constituents within the product.

Monitoring and management of hazardous waste and hazardous waste accumulation points is the responsibility of CEVC. Ultimate disposal of hazardous waste is the responsibility of the Defense Reutilization and Marketing Office (DRMO) unless a waiver is obtained for alternative methods of disposal. Procedures for waste management are detailed in the 15 CES/CEVR *Waste Management Plan* (OHM Remediation Services, 1997).

6.3 BACKGROUND LEVELS

6.3.1 Issues

Background concentration values of identified contaminants of concern (COCs) in soil, groundwater, surface water, and sediments is extremely important in evaluating remedial action levels or making decisions regarding no further action. This step is less important with use of remedial action “lookup” values such as the HDOH risk-based corrective action Tier 1 tables, but most important during conduct of more sophisticated remedial action determination methods such as risk assessment.

Background geochemistry is established through careful selection of sampling locations and sampling protocols to focus on the contaminants of concern. Because background samples are directly related to cleanup goals and land use issues, regulatory concurrence with the background sampling effort is critical. Data must be representative of natural or ambient conditions and validated to the highest level expected during the environmental restoration effort. Background sampling should focus mostly on constituents that are most likely to be considered contaminants at Hickam AFB, but are also most likely to be present naturally in soils or groundwater or have widespread distribution from anthropogenic sources. A number of heavy metals such as lead, arsenic, and beryllium do occur naturally in volcanic soils. Pesticides and herbicides are often widely distributed from agricultural applications and polynuclear aromatic compounds such as benzo(a)pyrene are commonly found throughout Air Force bases due to widespread use of fuels and jet and automobile exhaust. These compounds are often unrelated to site activities under investigation by the IRP but their presence at levels above State Tier 1 action levels or EPA Region IX PRGs forces their consideration with the risk assessment.

6.3.2 Resolution

The Base-wide SI developed background levels for inorganic compounds. Further data are being added to the database under current projects to determine the natural range of inorganic compounds in the various media at Hickam AFB. EPA Region IX methodology for background determination is used. In cases where appropriate background locations cannot be identified or where existing databases of information exist, literature surveys are used to augment or supplement field sampling. In FY98, an evaluation of Base-wide metals concentrations in soil and groundwater was updated in the Technical Memorandum: Estimated Background Concentrations of Metals in Soil and Groundwater at Hickam Air Force Base (CH2M HILL, 1998). The HDOH has requested modifications to this study. Data recently entered into ERPIMS are currently being evaluated for use in further definition of background levels.

6.4 FUTURE LAND USE AND CLEANUP STANDARDS

6.4.1 Future Land Use

Future land use at most locations on Hickam AFB is presumed to remain unchanged in the foreseeable future from present conditions. The USAF has a long-term commitment to maintaining a military air base presence on Oahu. An exception to this is the recent transfer of Runway 8L land to the State of Hawaii Department of Transportation, Airports Division, for inclusion into Honolulu International Airport (HIA). Land use on the transfer property is not expected to change as a result of the transfer.

The selection of remedial action goals at Hickam AFB will be dependent on existing (and future) land use classification. In general, cleanup levels at sites located in residential, recreational, and administrative areas will be more stringent than for sites located in mission and industrial areas. As an additional safeguard, if land use in a particular area changes, the Air Force requires that site data be re-evaluated against appropriate screening criteria. This requirement ensures, for example, that if an area were changed from industrial to residential use, IRP site and AOC data would need to be reevaluated against residential rather than industrial screening criteria.

6.4.2 Cleanup Standards

Hazardous substances cleanup at Hickam AFB is conducted under State of Hawaii regulation and guidance. Guidance documents are prepared by the HDOH.

The Hawaii Environmental Response Law. The Environmental Response Law (Chapter 128D, Hawaii Revised Statutes) is modeled after CERCLA. The general liability provisions and the response process are similar. The primary difference is that the Environmental Response Law defined hazardous substances to include oil. Oil includes crude oil and any fraction thereof.

The State Contingency Plan. The State Contingency Plan (SCP) (Hawaii Administrative Rules, Title 11, Chapter 451) defines the process for implementation of Chapter 128D, Hawaii Revised Statutes. This process addresses identifying, assessing, investigating and responding to releases of "hazardous substances" that are not subject to existing regulations. Unlike the NCP, the SCP does not have a petroleum exclusion. Guidance for implementing the SCP is provided in the *Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan* (HDOH, 1996).

HAR, Title 11, Chapter 54, Water Quality Standards. Groundwater resources beneath Hickam AFB are not considered as a drinking water source. HAR Title 11, Chapter 54, defines the State's ambient water quality criteria for freshwater, saltwater and fish consumption. In many cases for Hickam AFB, the primary potential pathway for humans or the environment to be exposed to subsurface groundwater contamination is through groundwater discharging to surface water in the base stormwater system or coastal waters. To assess the need for further characterization, the State's AWQC are often used to compare with levels of chemicals detected in the groundwater. The HDOH has recommended that in cases that the groundwater is not a drinking water source and one or more of the chemicals of concern do not have a corresponding Tier 1 action level for groundwater, the AWQC should be considered as a preliminary risk screening action level.

UST Closures. Procedures for performing, sampling and documenting UST closures are outlined in a HDOH guidance manual entitled *Technical Guidance Manual for Underground Storage Tank Closure and Release Responses; Reporting, Remediation, and Management of Petroleum-Contaminated Soil*, 2nd edition, March 2000. The State Contingency Plan also guides site closure.

Risk-Based Corrective Action (RBCA). RBCA groundwater cleanup action levels adhere to State and federal surface water and drinking water standards. For sites where drinking water may be affected, groundwater action levels are lowered to meet drinking water standards.

Determination of cleanup levels at contaminated sites is addressed in a HDOH guidance manual entitled *Risk-Based Corrective Action (RBCA) and Decision-Making at Sites with Contaminated Soil and Groundwater*. Soil cleanup standards are addressed in three tiers of classification, depending on site conditions and extent of contamination. These three tiers are:

- Tier 1 levels are default preliminary remediation goals (PRGs), which are conservative soil action levels provided by HDOH that can be used at any impacted site. These PRG cleanup levels are pre-accepted by HDOH to be protective of groundwater from leaching or free-phase mobilization of contaminants, and protective of human health from direct exposure to impacted soil. PRGs have been developed for specific chemicals assuming both industrial and residential exposure settings. The HDOH, Hazard Evaluation and Emergency Response (HEER) Office has recommended that residential PRGs be used to screen a site for maximum beneficial use of a property in order to document whether a site poses a risk should the land use change in the future. This approach will be adopted where deemed applicable by the Base RPM.
- Tier 2 allows the user to substitute actual site data into the Tier 1 direct exposure models to generate more site-specific cleanup levels. Site data such as wind speed, vegetative cover, area impacted, thickness of impacted soil, and soil properties are incorporated in the Tier 2 model. Tier 2 levels are set to meet a 10^{-6} risk for carcinogens or a hazard quotient of one for non-carcinogens assuming a residential setting.
- Tier 3 model is similar to Tier 2 in that it incorporates site data. Modeling with Tier 3, the user can also input soil concentrations to determine residential and occupational cancer risk based on contamination present. The Tier 3 approach also employs direct exposure modeling that may include non-default assumptions and alternative acceptable levels of risk.

The results from either the Tier 2 or Tier 3 direct exposure models are compared with the results based on groundwater protection modeling. The more stringent cleanup level would be selected. For contaminants without Tier 1 action levels for groundwater, which is not a source of drinking water, results are compared with the Ambient Water Quality Criteria set forth in HAR 11-54.

Cleanup standards may also be determined through a formal risk assessment by employing groundwater impact models and direct exposure models. Performing such risk assessments may be a lengthy process, but they may result in more realistic cleanup levels that are lower than the tiered approach. Formal risk assessments often require more extensive analytical data, evaluation of exposure pathways, and identification of receptors.

To determine cleanup standards, the choice of Tier 1, Tier 2, or a formal risk assessment (Tier 3) is a balance between conservatism, data, and time. Tier 1 requires minimal data and time to develop cleanup criteria, but the default PRGs are conservative. Conversely, a formal risk assessment requires more data, and more time; but for large sites, this approach may be worthwhile if the resulting cleanup levels are higher than the Tier 1 or Tier 2 levels.

6.5 RELATIVE RISK EVALUATION

6.5.1 Issues

All Hickam AFB IRP sites and some AOCs have been ranked under the revised Department of Defense (DoD) Relative Risk Evaluation Primer method. This system involves gathering specific information about the sites to perform comparative risk using categories of *high*, *medium*, or *low*. Based on this ranking, resources are allocated to the sites that present the greatest risk to public health or the environment. In some cases, assumptions regarding the pathway or potential receptors are necessary in lieu of empirical data. These assumptions are generally made in a manner that is biased towards protection of human health and the environment. Sites are evaluated by the following criteria:

- Potential and identified contaminants of concern at the site
- Pathways of air, soil, surface water, and groundwater contaminant migration
- Potential and/or identified human and ecological receptors.

The Department of Defense has established the following Defense Planning Guidance (DPG) goals that establish priorities and schedules for having Remedy-in-Place (RIP) at all IRP sites. RIP is a DoD term that means the technology to remediate sites is in place, but may require operation and maintenance.

- High Risk sites with RIP by FY07
- Medium Risk sites in RIP or lower risk by FY11
- Low Risk sites in RIP or lower risk by FY14

Meeting the DPGs requires that sites must be carefully ranked to ensure that the funding is applied appropriately to address the sites posing the greatest risk first. Implementing risk reduction measures that prevent completion of an exposure pathway may reduce risk.

6.5.2 Resolution

Initial relative risk rankings had made very conservative risk assumptions given the lack of data necessary to determine risk. Data collected since 1996 under the Base-wide PA/SI (EA, 1996) and subsequent projects have enabled the program manager to refine these risk assumptions.

6.6 CONTRACTING STRATEGY

15 ABW has several service centers through which environmental restoration work may be contracted; most often used are AFCEE, the COE, and the Naval Facilities Engineering Command, Pacific Division (PACDIV). The advantages and disadvantages of each are shown in Table 6-1.

Table 6-1
Contracting Options
Hickam Air Force Base

Contractor	Advantages	Disadvantages
AFCEE	<ul style="list-style-type: none"> • Free contracting service to 15 ABW (although oversight and other technical tasks may be charged against projects). • Variety of approved contractors available for studies and cleanup work. • Contractors well versed in Air Force requirements are available for development of government cost estimates, review of work plans, peer reviews, and review of documents. • Can arrange support to oversee fieldwork and aid in the development of projects. 	<ul style="list-style-type: none"> • AFCEE Project Team leaders are located in San Antonio, Texas, a 4- to 5-hour time difference. Telephone contact is often very difficult. • Support provided by AFCEE does not have the authority of a Contracting Officer's Representative and can only report problems, not resolve them. • No AFCEE-approved laboratory exists in Hawaii.
Army Corps of Engineers	<ul style="list-style-type: none"> • Local offices; opportunity for immediate resolution of problems. • Can access a variety of approved contractors, including many local firms with knowledge of Hawaii's unique geologic and ecological environments. • In-house technical expertise to develop Hawaii-specific government cost estimates, ability to provide field oversight and review of work plans and documents, and can provide section 106 oversight. • A local lab has been COE-approved for testing TPH. • Other COE divisions exist nationwide to provide services not available in the local Honolulu Engineer District. 	<ul style="list-style-type: none"> • Not always well versed in Air Force issues and concerns. • COE charges for all services provided, including contract development costs

Table 6-1
Contracting Options
Hickam Air Force Base

Contractor	Advantages	Disadvantages
Navy PACDIV	<ul style="list-style-type: none"> • Navy PACDIV office is located at Pearl Harbor Naval Base; hence local support is available and convenient. • Can access a variety of approved contractors, including many local firms with knowledge of Hawaii's unique geologic and ecological environments. • In-house technical expertise to develop Hawaii-specific government cost estimates, and ability to provide field oversight and review of work plans and documents. • Other divisions exist nationwide to provide services not available in the local Honolulu District. Hickam AFB can solve some IRP needs by augmenting and using existing contracts at Pearl Harbor Naval Base (e.g., community relations activities are performed by PRC, Inc., the Navy community relations contractor). 	<ul style="list-style-type: none"> • Not always well versed in Air Force issues and concerns • Navy charges for all services provided, including contract development costs

6.7 INSTITUTIONAL CONTROLS

6.7.1 Issues

Institutional Controls (ICs) are non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at a site, or assure effectiveness of the chosen remedy. Some examples of ICs include easements, covenants, well drilling prohibitions, zoning restrictions, and special building permit requirements. According to one EPA fact sheet ("Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Sites") fences that restrict access to sites are often termed ICs. However, because fences are physical barriers instead of administrative or legal measures, the EPA does not consider them to be ICs.

The issue is to ensure that ICs are properly defined and implemented.

ICs at Hickam are normally controlled through the following processes:

- Environmental Flight review of military construction and other intrusive projects designs. During this review, 15 CES/CEVR provides comments regarding the nature of contamination at a site and any potential impacts to the site or concerns related to construction at, or near, an IRP site. The review is provided to the proponent (typically 15 CES) and subsequently to the construction agent for incorporation as appropriate

(e.g., a health and safety plan, disposal of contaminated soils if encountered, the environmental point of contact, etc.).

- For those projects not undergoing design, the primary form of enforcing ICs is through 15 CES/CEV review of the AF Form 103. This form, entitled the “Work Clearance Request” and otherwise known as a “Dig Permit,” is required for all work involving excavations. The Environmental Flight is a primary office listed on this form. Through the dig permit review process, controls can be applied to ensure that subsurface excavation in or near IRP sites is done in a manner that is protective of human health and the environment.

The above ICs are routinely applied for all IRP sites and AOCs. In some cases, ICs have been specifically adopted as part of interim and final remedies documented in Action Memoranda and agreed to by the State HEER Office and 15 ABW. Specific sites where ICs are part of the selected remedies are listed below and shown on Figure 6-1.

- Site SS01 Interim Remedial Action: LNAPL Recovery through multiphase extraction, monitoring, and ICs.
- Site OT02 Interim Remedial Action: ICs with Long-Term Monitoring. This remedy is also considered to be the final remedy with the possibility of re-evaluating the remedy based on the LTM data. ICs are utilized to control future occupational exposures to contaminated groundwater. The site is located on land that has been transferred to the State of Hawaii with the understanding that the ICs need to be maintained by the State.
- Site SS11 South/AMC Ramp Area: Remedy consists of bioslurping, annual groundwater monitoring for natural attenuation, and ICs to control future occupational exposures to contaminated soil and groundwater. This is an interim remedy until MNA is demonstrated and accepted by the Air Force and the HEER Office. ICs will likely remain part of a future final remedy.
- Site SS11, Fuels Area 5: Remedy consists of groundwater monitoring once every two years for dissolved lead and ICs to control future occupational exposures to contaminated groundwater. This remedy is considered a final long-term remedy contingent on dissolved lead concentrations not migrating off site or increasing significantly.
- Site LF14: Remedy consists of construction of a fence to prevent occupation or recreational contact with PAH contaminated soils, monitoring of groundwater for PAHs once every three years and ICs to control future occupational exposures to contaminated surface and subsurface soils. This remedy is considered final with the contingency that, if land use changes are proposed, the proponent coordinates with the HEER Office and satisfies state requirements that soil be properly handled and disposed of.

6.7.2 Resolution

The effectiveness of ICs may be increased by incorporating information about ICs in the Base General Plan to ensure that long-term future land use planning considers the ICs in determining what areas of the Base will be developed. Land transfers and Environmental

Baseline Surveys for real estate transactions need to make the appropriate provisions and disclosure for ICs, respectively.

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Figure 6-1. Locations of Institutional Controls on Hickam AFB

Figure 6-1 (back side)

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Appendix A

Fiscal Year Requirements

Please contact the Hickam Restoration Program manager at (808) 449-1584 ext. 230 if additional information related to program costs is required.

Appendix B

Administrative Record Index

Documents listed in this record are current as of September 2001. The administrative record database is currently being updated by contract and this appendix will be updated when the contractor delivers the updated record.

KNMD OU1						
	Code#	Date	Title	Author	AR#	CD#
1.	ABWM-000	07 Sep 01	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	A001	1
2.	KNMD	03 Aug 01	RI/FS, Work Plan, Addendum No 1, SD-02, SD-03	CH2M Hill, Inc.	B452	12
3.	KNMD	11 Jul 01	Newspaper Article, "Meetings, RAB Meeting Announcement"	The Honolulu Midweek	B474	12
4.	KNMD	01 Jun 01	Newspaper Article, "Public Comments, A 30-Day Public Comment Period on the Draft RI Report"	The Hickam Kukini	B466	12
5.	KNMD	24 May 01	RAB Meeting Minutes, Hickam, 12 Apr 01	Tayon, James E 15 CES/CEV	B465	12
6.	KNMD	18 May 01	Newspaper Article, "Fueling Innovation"	The Hickam Kukini	B461	12
7.	KNMD	18 May 01	Newspaper Article, "Public Comments, A 30-Day Public Comment Period on the Draft RI Report"	The Hickam Kukini	B462	12
8.	KNMD	14 May 01	Newspaper Article, "Public Notices, Public Comment Period on Hickam AFB Draft RI"	The Honolulu Midweek	B460	12
9.	KNMD	13 May 01	Newspaper Article, "Public Comment Period on Hickam AFB, Draft RI Public Notice"	The Honolulu Star-Bulletin	B459	12
10.	ABWM-200	May 01	Community Relations Plan	15 CES/CEVR	A033	9
11.	KNMD	16 Mar 01	RAB Meeting Minutes, Hickam, 08 Feb 01	Tayon, James E 15 CES/CEV	B448	12
12.	KNMD	07 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Midweek	B446	12
13.	KNMD	04 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B447	12
14.	KNMD	16 Feb 01	Newspaper Article, "Bioslurper"	The Hickam Kukini	B445	12
15.	KNMD	05 Feb 01	Newspaper Article, "Military Briefing, Air Force, Fuel Recovery to be Discussed"	The Honolulu Advertiser	B444	12
16.	KNMD	02 Feb 01	Newspaper Article, "Hickam Community Can Learn About Environment"	The Hickam Kukini	B443	12
17.	KNMD-824	Dec 00	Management Action Plan, Hickam	15 CES/CEVR	B420	9
18.	KNMD-807	04 Oct 00	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, RI/FS, Manuwai Canal, Kumumauu Canal	Johns, Timothy E Hawaii Department of Land and Natural Resources	B402	9
19.	KNMD-805	29 Sep 00	EE/CA, Final Work Plan Addendum, LF-05, SD-02	CH2M Hill, Inc.	B400	9
20.	KNMD-845	28 Sep 00	RI/FS, Work Plan, SD-02, SD-03	CH2M Hill, Inc.	B369	9
21.	ABWM-187	11 Sep 00	SI, Final Critical Process Map, Closure	CH2M Hill, Inc.	A074	9

KNMD OU1						
	<i>Code#</i>	<i>Date</i>	<i>Title</i>	<i>Author</i>	<i>AR#</i>	<i>CD#</i>
22.	KNMD-755	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B345	6
23.	KNMD-758	Jul 00	SI, EE/CA, Phase I, UST Removal, Third Party Oversight for Archaeological Monitoring, Runway 8L, SS-22	The Environmental Company, Inc.	B348	6
24.	KNMD-759	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B349	6
25.	KNMD-741	30 Nov 99	RAB Meeting Minutes, Hickam, 29 Sep 99	15 CES/CE-2	B312	5
26.	ABWM-237	15 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri-RAB Conference"	Honolulu HS&CPN	A071	9
27.	ABWM-236	14 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri RAB Conference"	The Honolulu Advertiser	A070	9
28.	KNMD-736	26 Sep 99	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B305	5
29.	ABWM-234	Sep 99	Fact Sheet, Enviro Technology, Air Force Samples Soil, Water and Sediment to Assess Environmental Impacts	15 CES/CEVR	A067	9
30.	ABWM-235	Sep 99	Fact Sheet, Enviro Technology, Groundwater Sampling Provides Data Critical to Environmental Restoration Decisions	15 CES/CEVR	A068	9
31.	ABWM-233	19 Aug 99	SAF/MIQ Letter to Base Concerning Environmental Data From Intertek Testing Services Environmental Laboratories	McCall, Thomas WL, Jr SAF/MIQ	A066	9
32.	KNMD-731	17 Aug 99	HDOH Letter to Base Concerning Review of Draft MAP, Executive Summary	Salire, Teresita S Hawaii Department of Health	B300	5
33.	ABWM-177	16 Jul 99	Final Critical Process Map, UST Program	IT Corp.	A063	9
34.	ABWM-231	Jul 99	National Caucus, RAB Meeting Minutes, 17 -21 Jul 99	ARC Ecology	A064	9
35.	ABWM-230	14 May 99	HDOH Letter to Base Concerning Comments on Draft Critical Process Map, UST Program	Salire, Teresita S Hawaii Department of Health	A062	9
36.	ABWM-229	26 Apr 99	HQ USEPA Letter to SAF Concerning Reprocessing Data From Laboratories	Wentworth, Nancy W HQ USEPA	A061	9
37.	KNMD-710	01 Mar 99	Base Letter to Residents Concerning Cleanup Subsurface Contamination	Ingenloff, Richard J, Col 15 ABW/CC	B274	5
38.	ABWM-176	Mar 99	Final Management Action Plan, Executive Summary	15 CES/CEVR	A005	2
39.	KNMD-194	26 Feb 99	EE/CA, Sites Along Runway 8L, ITIR, SS-11	CH2M Hill, Inc.	B273	5
40.	KNMD-193	03 Feb 99	EE/CA, Sites Along Runway 8L, ITIR, SD-03	CH2M Hill, Inc.	B272	7
41.	KNMD-192	29 Jan 99	EE/CA, Sites Along Runway 8L, ITIR, SD-02	CH2M Hill, Inc.	B271	5
42.	ABWM-228	Jan 99	Tri RAB Meeting Minutes, 09 Jan 99	15 CES/CEVR	A060	9

KNMD OU1						
	Code#	Date	Title	Author	AR#	CD#
43.	KNMD-188	11 Dec 98	EE/CA, Sites Along Runway 8L, ITIR, ST-26	CH2M Hill, Inc.	B255	6
44.	KNMD-603	04 Dec 98	EE/CA, Work Plan, LF-05	CH2M Hill, Inc.	B249	4
45.	ABWM-226	02 Oct 98	HQ AFCEE Letter to HQ AFBCA Concerning Intertek Testing Services Data Issues	Selstrom, John P, Jr, Col HQ AFCEE/ER	A058	9
46.	ABWM-185	Oct 98	Final, Installation-Wide, QAPP, Version 1.0	CH2M Hill, Inc.	A056	9
47.	ABWM-186	Oct 98	Final, Installation-Wide, FSP, Version 2.0	CH2M Hill, Inc.	A057	9
48.	KNMD-695	30 Sep 98	HDOH Letter to Base Concerning Review of Installation Wide FSP and QAPP for Multiple Projects	Hataoka, Bryce Hawaii Department of Health	B226	4
49.	ABWM-225	30 Sep 98	HDOH Letter to Base Concerning No Comments on Installation Wide FSP, QAPP	Hataoka, Bryce Hawaii Department of Health	A055	9
50.	KNMD-691	11 Sep 98	TRC Meeting Minutes, 19 Mar 98	15 CES/CEVR	B222	4
51.	KNMD-692	11 Sep 98	Natural Resource Trustee Canals Post TRC Teleconference Meeting Minutes, 05 Aug 98	15 CES/CEVR	B223	4
52.	KNMD-689	28 Aug 98	USFWS Letter to Base Concerning EE/CA, SD-02, SD-03	Smith, Robert P US Fish and Wildlife Service	B218	4
53.	KNMD-684	07 Aug 98	HDOT Letter to Base Concerning Review of EE/CA, ITIR, SD-02, SD-03, SD-36	Schlapak, Benjamin R Hawaii Department of Transportation	B213	4
54.	KNMD-518	27 Jul 98	TRC Meeting Minutes, 27 Jul 98	15 CES/CEVR	B210	4
55.	KNMD-679	14 Jul 98	HDLNR Letter to Base Concerning Draft TRC Meeting Minutes	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B206	4
56.	KNMD-677	29 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda 5, Site Specific FSP, Runway 8L, EE/CA, ST-26	Salire, Teresita S Hawaii Department of Health	B201	4
57.	KNMD-675	23 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda No 4, Site Specific FSP, Runway 8L, EE/CA, SS-11	Salire, Teresita S Hawaii Department of Health	B199	4
58.	KNMD-674	18 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda 3, Site Specific FSP, Runway 8L, EE/CA	Salire, Teresita S Hawaii Department of Health	B198	4
59.	KNMD-509	19 May 98	RAB Meeting Minutes, Hickam, 17 Nov 97	15 CES/CEVR	B190	4
60.	KNMD-335	05 May 98	EE/CA, Technical Memorandum for Continuous Water Level Monitoring at Five Runway 8L Sites	CH2M Hill, Inc.	B188	4
61.	KNMD-668	May 98	Fact Sheet, Environmental, Cleanup Process	15 CES/CEVR	B187	4

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	Code#	Date	Title	Author	AR#	CD#
62.	KNMD-667	28 Apr 98	HDOT Letter to Base Concerning EE/CA, Draft ITIR, SD-02	Matsuda, Jerry M Hawaii Department of Transportation	B186	4
63.	KNMD-666	14 Apr 98	HDLNR Letter to Base Concerning EE/CA, Draft ITIR, SD-02	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B185	4
64.	KNMD-514	09 Mar 98	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B181	4
65.	KNMD-222	Mar 98	Final Comprehensive Historical Review of Underground POL Systems	Wil Chee-Planning, Inc.	B180	5
66.	KNMD-778	26 Feb 98	Installation Action Plan, Fort Kamehameha	15 CES/CEVR	B368	9
67.	ABWM-219	Jan 98	Fact Sheet, Enviro Technology, Innovative Bioslurping Technique Treats Petroleum in Soil at Air Force Sites	15 CES/CEVR	A049	9
68.	ABWM-220	Jan 98	Fact Sheet, Enviro Technology, Air Force Uses Bioslurping to Remove Underground Fuels	15 CES/CEVR	A050	9
69.	KNMD-507	10 Dec 97	RAB Meeting Minutes, Hickam, 26 Aug 97	15 CES/CEVR	B169	5
70.	KNMD-508	10 Dec 97	RAB Meeting Minutes, Hickam, 22 Oct 97	15 CES/CEVR	B170	5
71.	KNMD-657	17 Nov 97	Environmental Restoration Program, Hickam, RAB Charter	15 CES/CEVR	B167	5
72.	KNMD-513	16 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B166	5
73.	KNMD-512	12 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B165	5
74.	KNMD-844	07 Nov 97	Interim Bioassay Report, SD-02, SD-03	CH2M Hill, Inc.	B441	10
75.	ABWM-170	Sep 97	Final, Updated Work Plan, Archaeological Survey, Performance Evaluation Samples and Third Party Data Validation	The Environmental Company, Inc.	A047	9
76.	KNMD-511	24 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B157	5
77.	KNMD-510	20 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B156	5
78.	KNMD-647	15 Jul 97	Base Letter to Distribution Concerning EE/CA, Final Work Plan, Sites Along Runway 8L	Okazaki, Robert M 15 CES/CE-2	B144	6
79.	KNMD-502	19 May 97	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106, EE/CA, Runway 8L	Wilson, Michael D Hawaii Department of Land and Natural Resources	B140	6
80.	KNMD-646	14 May 97	USFWS Letter to Base Concerning Informal Section 7 Consultations for Environmental Investigations	Harper, Brooks US Fish and Wildlife Service	B139	6
81.	KNMD-501	08 May 97	TRC Meeting Minutes, 02 Apr 97	15 CES/CEVR	B138	6

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	Code#	Date	Title	Author	AR#	CD#
82.	KNMD-177	May 97	EE/CA, Final Work Plan, Sites Along Runway 8L	CH2M Hill, Inc.	B136	6
83.	KNMD-178	May 97	Archaeological Survey, Performance Evaluation Samples, Third Party Data Validation, Final Work Plan	The Environmental Company, Inc.	B137	6
84.	ABWM-168	Apr 97	Final Installation-Wide FSP	CH2M Hill, Inc.	A046	9
85.	KNMD-645	24 Mar 97	HDOH Letter to Base Concerning EE/CA, Draft Final Work Plan, Sites Along Runway 8L	Olmsted, Gregory K Hawaii Department of Health	B135	6
86.	KNMD-642	21 Mar 97	HDOH Letter to Base Concerning Draft Basewide FSP	Olmsted, Gregory K Hawaii Department of Health	B132	6
87.	KNMD-643	21 Mar 97	HDOH Letter to Base Concerning SI, Draft SAP	Olmsted, Gregory K Hawaii Department of Health	B133	6
88.	KNMD-644	21 Mar 97	HDOH Letter to Base Concerning SI, Draft Work Plan	Olmsted, Gregory K Hawaii Department of Health	B134	6
89.	KNMD-640	12 Mar 97	RAB Meeting Minutes, Hickam, 26 Feb 97	15 CES/CEVR	B130	6
90.	KNMD-639	26 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B129	6
91.	KNMD-638	24 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B128	6
92.	KNMD-637	19 Feb 97	HDOH Letter to Base Concerning PA/SI, Draft Report, Vol I-II	Olmsted, Gregory K Hawaii Department of Health	B127	6
93.	KNMD-636	10 Feb 97	RAB Meeting Minutes, Hickam, 29 Jan 97	15 CES/CEVR	B126	6
94.	KNMD-173	Nov 96	Final Management Action Plan, Hickam	CH2M Hill, Inc.	B120	4
95.	KNMD-174	Nov 96	PA/SI, Draft Report, Vol I of II, Technical Report, Appendices A-D	EA Engineering, Science, and Technology, Inc.	B121	4
96.	KNMD-175	Nov 96	PA/SI, Draft Report, Vol II of II, Technical Report, Appendices E-F	EA Engineering, Science, and Technology, Inc.	B122	6
97.	KNMD-176	Nov 96	PA/SI, Draft Report, Appendices G-L, Vol II of II	EA Engineering, Science, and Technology, Inc.	B123	4
98.	KNMD-506	28 Oct 96	RAB Meeting Minutes, Hickam, 10 Sep 96	15 CES/CEVR	B119	4
99.	KNMD-633	10 Oct 96	Newspaper Article, "Hickam Air Force Base Environmental Cleanup"	The Honolulu Advertiser	B117	4
100.	ABWM-217	Oct 96	Fact Sheet, Environmental, Relative Risk	15 CES/CEVR	A045	9
101.	ABWM-184	30 Aug 96	Results of Multi-Site Field Treatability Test, Bioslurping	Battelle	A044	9
102.	ABWM-216	02 Jun 96	Newspaper Article, "Air Force Assesses Contamination Risks, Study Would Help in Cleanup Plans"	The Honolulu Advertiser	A043	9
103.	KNMD-169	Apr 96	PA/SI, Draft FSP for Limited Field Investigation, Grouping 2	EA Engineering, Science, and Technology, Inc.	B112	4

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	Code#	Date	Title	Author	AR#	CD#
104	KNMD-629	07 Mar 96	HDOH Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Grouping 2	Olmsted, Gregory K Hawaii Department of Health	B110	4
105	KNMD-165	Mar 96	Phase II, Stage 3, RI Final Report, Vol I of VIII, Executive Summary, Sections 1, 2, 3, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B106	4
106	ABWM-212	30 Oct 95	EPA Letter to Base Concerning Meeting to Discuss Oahu Plantation Superfund Site	Opalski, Pam Cooper, David EPA Region IX	A038	9
107	KNMD-623	20 Oct 95	HDOH Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Grouping 2	Olmsted, Gregory K Hawaii Department of Health	B097	6
108	ABWM-208	07 Sep 95	HDLNR Letter to Base Concerning Comments on PA/SI, RI/FS	Wilson, Michael D Hawaii Department of Land and Natural Resources	A034	9
109	KNMD-619	12 Jul 95	Base Letter to Distribution Concerning Comment Resolution for Risk Screening Evaluations	Strom, Randie A, LtCol 15 CES/CEV	B092	3
110	KNMD-762	Jul 95	SOW, Community Relations Program	HQ AFCEE	B352	6
111	ABWM-001	Jul 95	Community Relations Plan	EA Engineering, Science, and Technology, Inc.	A004	2
112	ABWM-153	Jul 95	PA/SI, Final Work Plan	EA Engineering, Science, and Technology, Inc.	A032	9
113	KNMD-616	16 Jun 95	HDOH Letter to Base Concerning Review of Risk Screening Evaluations	Olmsted, Gregory K Hawaii Department of Health	B088	3
114	KNMD-617	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B089	3
115	ABWM-207	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations Subset for RAB Review	Schutz, Michelle EPA Region IX	A031	9
116	ABWM-205	16 Jun 95	USFWS Letter to Base Concerning Comments on Draft PA/SI, Limited Field Investigation	Harper, Brooks US Fish and Wildlife Service	A029	9
117	ABWM-206	16 Jun 95	NOAA Letter to Base Concerning Comments on Preliminary Risk Ranking and Site Prioritization, PA/SI, Risk Screening Evaluations	Klimas, Denise M National Oceanic and Atmospheric Administration	A030	9
118	ABWM-120	Jun 95	PA/SI, RI/FS, Final SAP	EA Engineering, Science, and Technology, Inc.	A023	9
119	ABWM-121	Jun 95	PA/SI, Final Waste Management Plan	15 CES/CEVR	A028	9
120	ABWM-163	05 May 95	Final Aerial Photograph Review Summary Report	Montgomery Watson	A020	9
121	KNMD-615	01 May 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B087	3

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	Code#	Date	Title	Author	AR#	CD#
122	ABWM-116	May 95	Final Risk Screening Evaluations Report, Vol I of IV	EA Engineering, Science, and Technology, Inc.	A024	9
123	ABWM-117	May 95	Final Risk Screening Evaluations Report, Vol II of IV	EA Engineering, Science, and Technology, Inc.	A025	9
124	ABWM-118	May 95	Final Risk Screening Evaluations Report, Vol III of IV	EA Engineering, Science, and Technology, Inc.	A026	9
125	ABWM-119	May 95	Final Risk Screening Evaluations Report, Vol IV of IV	EA Engineering, Science, and Technology, Inc.	A027	9
126	ABWM-114	May 95	Final Risk Screening Evaluations Report, Subset for Review by RAB	EA Engineering, Science, and Technology, Inc.	A021	9
127	ABWM-115	May 95	Final Ranking of Sites by Potential for Risk	15 CES/CEVR	A022	9
128	KNMD-151	Apr 95	Draft EA Report, Manuwai Canal Maintenance Dredging	15 CES/CEVR	B442	10
129	KNMD-614	30 Mar 95	USFWS Letter to Base Concerning Comments on Draft Risk Screening Evaluations	Harper, Brooks US Fish and Wildlife Service	B086	3
130	ABWM-204	02 Mar 95	NOAA Letter to Base Concerning Comments on SAP and Work Plan	Naughton, John J National Oceanic and Atmospheric Administration	A019	9
131	KNMD-611	24 Feb 95	NOAA Letter to USACE Concerning EA, Manuwai Canal	Naughton, John J National Oceanic and Atmospheric Administration	B083	3
132	KNMD-248	Dec 94	Hazardous and Non-Hazardous Materials Waste Plan	Environmental Sciences - Pacific, Inc.	B079	3
133	ABWM-096	Dec 94	Final Management Action Plan, Executive Summary	EA Engineering, Science, and Technology, Inc.	A003	2
134	ABWM-203	21 Oct 94	USFWS Letter to Base Concerning Endangered and Threatened Species, Federally Listed, Proposed and Candidate	Harper, Brooks US Fish and Wildlife Service	A018	9
135	ABWM-182	Oct 94	PA/SI, RI/FS, Final HSP	EA Engineering, Science, and Technology, Inc.	A017	9
136	ABWM-113	Sep 94	PA/SI, Draft Work Plan	EA Engineering, Science, and Technology, Inc.	A016	9
137	ABWM-064	Jul 94	Draft Site Characterization Report, Risk Screening	Engineering Sciences, Inc.	A013	9
138	ABWM-103	Jul 94	Draft SAP	EA Engineering, Science, and Technology, Inc.	A014	9
139	ABWM-104	Jul 94	Draft QAPP	EA Engineering, Science, and Technology, Inc.	A015	9
140	ABWM-085	Dec 93	Final Management Action Plan, Executive Summary	Engineering-Sciences, Inc.	A002	2
141	ABWM-201	Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	A006	2
142	KNMD-843	09 Jul 93	HDOT Memo Concerning Analysis of Sediment from Manuwai Drainage Canal	Araman, Sam Hawaii Department of Transportation	B440	10

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	<i>Code#</i>	<i>Date</i>	<i>Title</i>	<i>Author</i>	<i>AR#</i>	<i>CD#</i>
143	KNMD-084	Mar 93	Final Technical Report, Drainage Canal Survey	Armstrong Laboratory, Occupational and Environmental Health Directorate	B052	2
144	KNMD-607	26 Nov 91	PA, Screening Report, Fort Kamehameha Military Reservation	SAF/MIIR	B041	2
145	KNMD-024	26 Sep 91	PA/SI, Review Report	University of Hawaii Environmental Center	B040	2
146	KNMD-001	Jul 83	Phase I, Records Search Report	Sam O Hirota, Inc.	B002	2

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	Code#	Date	Title	Author	AR#	CD#
1.	ABWM-000	07 Sep 01	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	A001	1
2.	KNMD	12 Jul 01	Remediation Management Plan, Addendum No 1, POL System Components, KNMD OU-2	IT Corp.	B475	12
3.	KNMD	11 Jul 01	Newspaper Article, "Meetings, RAB Meeting Announcement"	The Honolulu Midweek	B474	12
4.	KNMD	29 Jun 01	Removal Action, Final Project Work Plans, UST Verification	Groundwater Technology, Inc.	B468	12
5.	KNMD	29 Jun 01	Final NFRAP Decision Document, Record of Closure, ST-35	IT Corp.	B469	12
6.	KNMD	24 May 01	RAB Meeting Minutes, Hickam, 12 Apr 01	Tayon, James E 15 CES/CEV	B465	12
7.	KNMD	21 May 01	Newspaper Article, "Public Comment Period on Hickam AFB Draft Reports, Public Notice"	The Honolulu Midweek	B464	12
8.	KNMD	20 May 01	Newspaper Article, "Public Comments Period on Hickam AFB Draft Reports, Public Notice"	The Honolulu Star-Bulletin	B463	12
9.	KNMD	18 May 01	Newspaper Article, "Fueling Innovation"	The Hickam Kukini	B461	12
10.	ABWM-200	May 01	Community Relations Plan	15 CES/CEVR	A033	9
11.	KNMD	16 Mar 01	RAB Meeting Minutes, Hickam, 08 Feb 01	Tayon, James E 15 CES/CEV	B448	12
12.	KNMD	07 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Midweek	B446	12
13.	KNMD	04 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B447	12
14.	KNMD-842	23 Feb 01	Base Letter to HDOH Concerning Release Notifications for Environmental Restoration Account, USTs	Tayon, James E 15 CES/CEV	B439	10
15.	KNMD-841	22 Feb 01	Final Record of Closure, Subsite 1720, ST-35	IT Corp.	B438	10
16.	KNMD	16 Feb 01	Newspaper Article, "Bioslurper"	The Hickam Kukini	B445	12
17.	KNMD	05 Feb 01	Newspaper Article, "Military Briefing, Air Force, Fuel Recovery to be Discussed"	The Honolulu Advertiser	B444	12
18.	KNMD	02 Feb 01	Newspaper Article, "Hickam Community Can Learn About Environment"	The Hickam Kukini	B443	12
19.	KNMD-834	22 Jan 01	Final Record of Closure, Subsite 2050B, ST-32	IT Corp.	B431	9
20.	KNMD-832	17 Jan 01	Final Record of Closure, Subsite 320, ST-33	IT Corp.	B429	9
21.	KNMD-833	17 Jan 01	Final Record of Closure, Subsite 1001, ST-31	IT Corp.	B430	10

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	Code#	Date	Title	Author	AR#	CD#
22.	KNMD-830	12 Jan 01	USFWS Letter to Base Concerning Interim Removal Actions, Runway 8I Sites, and Pipeline Abandonment Activities	Henson, Paul US Fish and Wildlife Service	B427	9
23.	KNMD-829	02 Jan 01	HDOH Letter to Base Concerning Intent to Close USTs	Olmsted, Gregory K Hawaii Department of Health	B426	9
24.	KNMD-373	29 Dec 00	Final Site Characterization Report, Subsite 3200, Steam Plant, Subsite F-1004, ST-32, Subsite T-31, Subsite T-32, ST-28, ST-31	IT Corp.	B425	9
25.	KNMD-828	12 Dec 00	Base Letter to HDOH Concerning Notice of Intent to Close UST	Tayon, James E 15 CES/CEV	B424	9
26.	KNMD-826	08 Dec 00	Final Record of Closure, Subsite 496, ST-33	IT Corp.	B422	9
27.	KNMD-827	08 Dec 00	Base Letter to HDLNR Concerning Section 106 Review, Pipeline Abandonment Activities	Tayon, James E 15 CES/CEV	B423	9
28.	KNMD-824	Dec 00	Management Action Plan, Hickam	15 CES/CEVR	B420	9
29.	KNMD-823	30 Nov 00	Base Letter to USFWS Concerning Supplemental Informal Section 7 Consultation, Pipeline Abandonment Activities	Tayon, James E 15 CES/CEV	B419	9
30.	ABWM-188	10 Nov 00	SI, Final Work Plan, Closure	CH2M Hill, Inc.	A076	9
31.	KNMD-813	23 Oct 00	Interim Removal Actions, Work Plan, Runway 8L Sites	CH2M Hill, Inc.	B409	9
32.	KNMD-379	16 Oct 00	Final Record of Closure, Subsite F-1041, ST-31	IT Corp.	B407	9
33.	KNMD-812	16 Oct 00	Final Record of Closure, Subsite F-177A, F-177B, ST-32	IT Corp.	B408	9
34.	KNMD-806	04 Oct 00	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, Interim Removal Action, Runway 8L	Johns, Timothy E Hawaii Department of Land and Natural Resources	B401	9
35.	KNMD-804	26 Sep 00	Final Record of Closure, Subsite F-511, ST-32	IT Corp.	B399	10
36.	ABWM-241	26 Sep 00	HDOH Letter to Base Concerning Comments on SI, Draft Work Plan	Salire, Teresita S Hawaii Department of Health	A075	9
37.	KNMD-376	11 Sep 00	Final Record of Closure Report, Subsite F-29A, ST-31	IT Corp.	B394	10
38.	ABWM-187	11 Sep 00	SI, Final Critical Process Map, Closure	CH2M Hill, Inc.	A074	9
39.	KNMD-799	03 Aug 00	Final Record of Closure Report, Subsite 3318, ST-38	OHM Remediation Services Corp.	B392	9
40.	KNMD-558	03 Aug 00	Final Record of Closure Report, ST-20, Subsites F-706, F-708	OHM Remediation Services Corp.	B393	9
41.	KNMD-377	01 Aug 00	Final Record of Closure Report, Subsite F-33, ST-31	IT Corp.	B391	9

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	Code#	Date	Title	Author	AR#	CD#
42.	KNMD-800	Aug 00	Addendum to Third Party Oversight, Archaeological Monitoring Report, POL System Component Removals Project, Fort Kamehameha	The Environmental Company, Inc.	B395	10
43.	KNMD-793	06 Jul 00	Final Record of Closure Report, Subsite 3361, ST-38	OHM Remediation Services Corp.	B384	9
44.	KNMD-555	06 Jul 00	Final Record of Closure Report, Subsite F-727, ST-20	OHM Remediation Services Corp.	B385	9
45.	KNMD-755	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B345	6
46.	KNMD-756	Jul 00	Third Party Oversight for Archaeological Monitoring Report, POL System Component Removals	The Environmental Company, Inc.	B346	6
47.	KNMD-757	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, POL System Component Removals	The Environmental Company, Inc.	B347	6
48.	KNMD-758	Jul 00	SI, EE/CA, Phase I, UST Removal, Third Party Oversight for Archaeological Monitoring, Runway 8L, SS-22	The Environmental Company, Inc.	B348	6
49.	KNMD-759	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B349	6
50.	KNMD-760	Jul 00	Pre-Screening and Geophysical Survey Results, Final Report, Vol I of II	IT Corp.	B350	6
51.	KNMD-761	Jul 00	Pre-Screening and Geophysical Survey Results, Final Report, Vol II of II	IT Corp.	B351	6
52.	KNMD-751	27 Jan 00	HDOH Letter to Base Concerning Transfer of Petroleum Contaminated Soils from Base to University of Hawaii	Gill, Gary Hawaii Department of Health	B338	8
53.	KNMD-618	03 Jan 00	USFWS Letter to Base Concerning Request for Concurrence, UST Verification, Removal and Soil Excavation, Fort Kamehameha	Henson, Paul US Fish and Wildlife Service	B090	9
54.	KNMD-749	01 Jan 00	USFWS Letter to Base Concerning Request for Section 7 Concurrence for Environmental Quality Program, Site Characterization for Phytoremediation Research and Demonstration	Henson, Paul US Fish and Wildlife Service	B336	8
55.	KNMD-364	30 Dec 99	Final Action Memorandum, ST-26	CH2M Hill, Inc.	B320	5
56.	KNMD-744	17 Dec 99	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, UST Removal	Johns, Timothy E Hawaii Department of Land and Natural Resources	B315	5
57.	KNMD-792	02 Dec 99	Base Letter to USFWS Concerning Informal Section 7 Consultation, UST Verification and Removal	Aoyama, Marc M 15 CES/CE-2	B383	9
58.	KNMD-741	30 Nov 99	RAB Meeting Minutes, Hickam, 29 Sep 99	15 CES/CE-2	B312	5

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	Code#	Date	Title	Author	AR#	CD#
59.	KNMD-791	30 Nov 99	Base Letter to HDOH Concerning Notice of Intent to Close USTs	Aoyama, Marc M 15 CES/CE-2	B382	9
60.	KNMD-790	29 Nov 99	Base Letter to HDLNR Concerning Section 106 Review, UST Removal	Aoyama, Marc M 15 CES/CE-2	B381	9
61.	KNMD-355	19 Nov 99	EE/CA, Sites Along Runway 8L, Final Report, ST-26	CH2M Hill, Inc.	B328	4
62.	ABWM-237	15 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri-RAB Conference"	Honolulu HS&CPN	A071	9
63.	ABWM-236	14 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri RAB Conference"	The Honolulu Advertiser	A070	9
64.	KNMD-738	12 Nov 99	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, UST Removal	Johns, Timothy E Hawaii Department of Land and Natural Resources	B309	5
65.	KNMD-552	Nov 99	Remediation Management Plan, POL System Components, Addendum 1 to Management Action Plan, OU-2	OHM Remediation Services Corp.	B324	6
66.	KNMD-768	07 Oct 99	HDOH Letter to Base Concerning Intent to Close USTs	Olmsted, Gregory K Hawaii Department of Health	B358	6
67.	KNMD-605	Oct 99	Final Geophysical Survey Results for Delineation of Buried Metal, UST Verification and Removal	IT Corp. OHM Remediation Services Corp.	B306	5
68.	KNMD-736	26 Sep 99	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B305	5
69.	KNMD-735	21 Sep 99	Base Letter to HDOH Concerning Responses to Comments on EE/CA and NFRAP Planned Documents	Aoyama, Marc M 15 CES/CE-2	B304	5
70.	ABWM-234	Sep 99	Fact Sheet, Enviro Technology, Air Force Samples Soil, Water and Sediment to Assess Environmental Impacts	15 CES/CEVR	A067	9
71.	ABWM-235	Sep 99	Fact Sheet, Enviro Technology, Groundwater Sampling Provides Data Critical to Environmental Restoration Decisions	15 CES/CEVR	A068	9
72.	ABWM-233	19 Aug 99	SAF/MIQ Letter to Base Concerning Environmental Data From Intertek Testing Services Environmental Laboratories	McCall, Thomas WL, Jr SAF/MIQ	A066	9
73.	KNMD-731	17 Aug 99	HDOH Letter to Base Concerning Review of Draft MAP, Executive Summary	Salire, Teresita S Hawaii Department of Health	B300	5
74.	KNMD-772	17 Aug 99	Base Letter to HDOH Concerning Tank Release Notifications, Bldg 29, ST-31	Aoyama, Marc M 15 CES/CE-2	B362	6
75.	KNMD-773	17 Aug 99	Base Letter to HDOH Concerning Tank Release Notifications, Bldg 1042, ST-31	Aoyama, Marc M 15 CES/CE-2	B363	6
76.	KNMD-730	16 Aug 99	HDOH Letter to Base Concerning Release of Petroleum, ST-35	Sadoyama, Eric Hawaii Department of Health	B299	5
77.	KNMD-357	12 Aug 99	HDOH Letter to Base Concerning Intent to Close USTs	Olmsted, Gregory K Hawaii Department of Health	B357	6

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	Code#	Date	Title	Author	AR#	CD#
78.	KNMD-726	03 Aug 99	USGS Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Klein, John M US Geological Survey	B294	5
79.	KNMD-723	02 Aug 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Final Report, ST-26	Salire, Teresita S Hawaii Department of Health	B291	5
80.	KNMD-771	30 Jul 99	Newspaper Article, "Restoration Team Begins Removing Underground Tanks Throughout Hickam"	The Hickam Kukini	B361	6
81.	KNMD-722	27 Jul 99	USFWS Letter to Base Concerning Request for Section 7 Concurrence, UST Verification and Removal	Smith, Robert P US Fish and Wildlife Service	B290	5
82.	KNMD-789	23 Jul 99	Base Letter to HDOH Concerning Tank Release Notification	Aoyama, Marc M 15 CES/CE-2	B380	9
83.	KNMD-721	22 Jul 99	HDOT Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Schlapak, Benjamin R Hawaii Department of Transportation	B289	5
84.	KNMD-788	19 Jul 99	HDOH Letter to Base Concerning Release of Petroleum, UST	Sadoyama, Eric Hawaii Department of Health	B379	9
85.	KNMD-719	16 Jul 99	HDOH Letter to Base Concerning Review of Response to Comments on Draft Project Work Plans, UST Verification and Removal, Addendum to Final Project Work Plans, Aug 97	Salire, Teresita S Hawaii Department of Health	B287	5
86.	KNMD-720	16 Jul 99	HDOH Letter to Base Concerning Review of Draft Work Plan, Third Party Validation, Archaeology Monitoring, Removal of USTs	Salire, Teresita S Hawaii Department of Health	B288	5
87.	ABWM-177	16 Jul 99	Final Critical Process Map, UST Program	IT Corp.	A063	9
88.	KNMD-787	16 Jul 99	HDOH Letter to Base Concerning Notice of Intent to Close UST	Olmsted, Gregory K Hawaii Department of Health	B378	9
89.	KNMD-769	04 Jul 99	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B360	6
90.	KNMD-346	Jul 99	Final Project Work Plans, UST Verification and Removal, Addendum, Aug 97	IT Corp.	B286 Part 1	5
91.	ABWM-231	Jul 99	National Caucus, RAB Meeting Minutes, 17 -21 Jul 99	ARC Ecology	A064	9
92.	KNMD-346	Jul 99	Final Project Work Plans, UST Verification and Removal, Addendum, Aug 97	IT Corp.	B286 Part 2	5
93.	KNMD-766	29 Jun 99	HDOH Letter to Base Concerning Intent to Close UST, Bldg 3318	Olmsted, Gregory K Hawaii Department of Health	B356	6
94.	KNMD-786	11 Jun 99	Base Letter to HDOH Concerning Hazardous Substance Written Follow-Up Notification and Short Term Release Response	Aoyama, Marc M 15 CES/CE-2	B377	9

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	Code#	Date	Title	Author	AR#	CD#
95.	KNMD-348	Jun 99	Final Archaeology Monitoring Plan, Removal of USTs	International Archaeological Research Institute, Inc.	B283	5
96.	KNMD-716	25 May 99	HDOH Letter to Base Concerning Review of Draft Project Work Plans, UST Verification and Removal, Addendum to Final Project Work Plans, Aug 97	Salire, Teresita S Hawaii Department of Health	B280	5
97.	KNMD-770	16 May 99	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B359	6
98.	ABWM-230	14 May 99	HDOH Letter to Base Concerning Comments on Draft Critical Process Map, UST Program	Salire, Teresita S Hawaii Department of Health	A062	9
99.	ABWM-229	26 Apr 99	HQ USEPA Letter to SAF Concerning Reprocessing Data From Laboratories	Wentworth, Nancy W HQ USEPA	A061	9
100	KNMD-712	20 Apr 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Report, ST-26	Salire, Teresita S Hawaii Department of Health	B276	5
101	KNMD-784	07 Apr 99	Base Letter to HDOH Concerning Tank Release Notifications, Facility 9-103451	Torchia, Linden J, LtCol 15 CES/CE-2	B375	9
102	KNMD-785	07 Apr 99	Base Letter to HDOH Concerning Confirmed Release Notification, Facility 9-103447	Torchia, Linden J, LtCol 15 CES/CE-2	B376	9
103	KNMD-765	05 Apr 99	HDOH Letter to Base Concerning Response to Confirmed Release Notification, ST-20	Sadoyama, Eric Hawaii Department of Health	B355	6
104	KNMD-763	31 Mar 99	HDOH Letter to Base Concerning Response to Confirmed Release Notification, Bldg 3361	Maniulit, Renato S Hawaii Department of Health	B353	6
105	KNMD-764	31 Mar 99	HDOH Letter to Base Concerning Response to Confirmed Release Notification, Bldg 3592	Sadoyama, Eric Hawaii Department of Health	B354	6
106	KNMD-710	01 Mar 99	Base Letter to Residents Concerning Cleanup Subsurface Contamination	Ingenloff, Richard J, Col 15 ABW/CC	B274	5
107	ABWM-176	Mar 99	Final Management Action Plan, Executive Summary	15 CES/CEVR	A005	2
108	ABWM-228	Jan 99	Tri RAB Meeting Minutes, 09 Jan 99	15 CES/CEVR	A060	9
109	KNMD-301	23 Dec 98	Phase II, Final Geophysical Survey Results for Delineation of Buried Metal, UST Verification, Removal, Soil Excavation, and Transportation	OHM Remediation Services Corp.	B252	4
110	KNMD-706	23 Dec 98	Base Letter to HDOH Concerning Final Records of Closure	Testa, Ann M, Col 15 ABW/CC	B258	6
111	KNMD-705	17 Dec 98	NOAA Letter to Base Concerning Section 7 Consultation, Proposed UST Removal, Ft Kamehameha	Hogarth, William T National Oceanic and Atmospheric Administration	B257	6
112	KNMD-188	11 Dec 98	EE/CA, Sites Along Runway 8L, ITIR, ST-26	CH2M Hill, Inc.	B255	6

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	Code#	Date	Title	Author	AR#	CD#
113	KNMD-703	04 Dec 98	HDOH Letter to Base Concerning Information Request, Bldg 3245, AVPA-B	Chang, Steven YK Hawaii Department of Health	B253	6
114	KNMD-702	23 Nov 98	HDOH Letter to Base Concerning Concurrence With NFRAP for Various UST Subsites, POL Component System Removals	Salire, Teresita S Hawaii Department of Health	B251	4
115	KNMD-701	20 Nov 98	OHM Letter to Base Concerning Summary of HDOH Comments on the Site Characterization Reports and UST Closure Reports	Nicholson, Jon B OHM Remediation Services Corp.	B250	4
116	KNMD-700	12 Nov 98	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, UST Removal	Wilson, Michael D Hawaii Department of Land and Natural Resources	B247	4
117	KNMD-783	04 Nov 98	HDOH Letter to Base Concerning Draft Project Work Plans, Fort Kamehameha UST Verification and Removal, Addendum to Final Project Plans	Salire, Teresita S Hawaii Department of Health	B374	9
118	KNMD-292	Nov 98	NFRAP, Decision Document, Final Record of Closure, Subsite 3007, ST-28	OHM Remediation Services Corp.	B237	6
119	KNMD-293	Nov 98	NFRAP, Decision Document, Final Record of Closure, ST-28, Subsites 3023, AVPA-B	OHM Remediation Services Corp.	B238	6
120	KNMD-294	Nov 98	NFRAP, Decision Document, Final Record of Closure, Subsite 1093, ST-29	OHM Remediation Services Corp.	B239	6
121	KNMD-295	Nov 98	Final Record of Closure Report, Subsite 725, ST-30	OHM Remediation Services Corp.	B240	6
122	KNMD-296	Nov 98	NFRAP, Decision Document, Final Record of Closure, ST-30, Subsites 815, 970, 998	OHM Remediation Services Corp.	B241	6
123	KNMD-297	Nov 98	NFRAP, Decision Document, Final Record of Closure, Subsite 1055B, ST-31	OHM Remediation Services Corp.	B242	6
124	KNMD-298	Nov 98	NFRAP, Decision Document, Final Record of Closure, ST-32, Subsites 1102, 1113, 1122	OHM Remediation Services Corp.	B243	4
125	KNMD-299	Nov 98	Final Record of Closure Report, Subsite 1152, ST-32	OHM Remediation Services Corp.	B244	4
126	KNMD-300	Nov 98	NFRAP, Decision Document, Final Record of Closure, Subsite 358, ST-33	OHM Remediation Services Corp.	B245	4
127	KNMD-601	Nov 98	Executive Summary, Addendum to Final Project Work Plans, Quality Program Plan, UST Verification, Removal, Soil Excavation, Transportation, Aug 97	OHM Remediation Services Corp.	B322	5
128	KNMD-699	27 Oct 98	USGS Letter to Base Concerning Review of Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Meyer, William US Geological Survey	B236	4
129	KNMD-698	23 Oct 98	HDOH Letter to Base Concerning Review of Draft Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Salire, Teresita S Hawaii Department of Health	B235	4

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	Code#	Date	Title	Author	AR#	CD#
130	KNMD-782	20 Oct 98	HDOH Letter to Base Concerning Notice of Intent to Close USTs	Olmsted, Gregory K Hawaii Department of Health	B373	9
131	KNMD-697	16 Oct 98	USFWS Letter to Base Concerning Informal Section 7 Consultations for POL System Component Removals Project, Ft Kamehameha	Smith, Robert P US Fish and Wildlife Service	B234	4
132	KNMD-696	02 Oct 98	HDOH Letter to Base Concerning Evaluation of the Draft Response to Comments on Draft Site Characterization Reports and UST Closure Reports	Salire, Teresita S Hawaii Department of Health	B233	4
133	ABWM-226	02 Oct 98	HQ AFCEE Letter to HQ AFBCA Concerning Intertek Testing Services Data Issues	Selstrom, John P, Jr, Col HQ AFCEE/ER	A058	9
134	KNMD-286	Oct 98	Site Characterization, Final Report, Subsite 2020/2021, ST-28	OHM Remediation Services Corp.	B227	6
135	KNMD-287	Oct 98	Site Characterization, Final Report, Subsite 2006, ST-29	OHM Remediation Services Corp.	B228	6
136	KNMD-288	Oct 98	Site Characterization, Final Report, ST-30, Subsites 934, 940	OHM Remediation Services Corp.	B229	6
137	KNMD-289	Oct 98	Site Characterization, Final Report, Subsite 969, ST-30	OHM Remediation Services Corp.	B230	4
138	KNMD-290	Oct 98	Site Characterization, Final Report, ST-33, Subsites 344, 471	OHM Remediation Services Corp.	B231	4
139	KNMD-291	Oct 98	Site Characterization, Final Report, Subsite 2184, ST-34	OHM Remediation Services Corp.	B232	4
140	ABWM-185	Oct 98	Final, Installation-Wide, QAPP, Version 1.0	CH2M Hill, Inc.	A056	9
141	ABWM-186	Oct 98	Final, Installation-Wide, FSP, Version 2.0	CH2M Hill, Inc.	A057	9
142	KNMD-694	30 Sep 98	HDOT Letter to Base Concerning Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Schlapak, Benjamin R Hawaii Department of Transportation	B225	4
143	KNMD-695	30 Sep 98	HDOH Letter to Base Concerning Review of Installation Wide FSP and QAPP for Multiple Projects	Hataoka, Bryce Hawaii Department of Health	B226	4
144	ABWM-225	30 Sep 98	HDOH Letter to Base Concerning No Comments on Installation Wide FSP, QAPP	Hataoka, Bryce Hawaii Department of Health	A055	9
145	KNMD-693	21 Sep 98	Base Letter to USFWS Concerning Informal Section 7 Consultation, POL System Component Removals Project, Ft Kamehameha	Aoyama, Marc M 15 CES/CE-2	B224	4
146	KNMD-781	18 Sep 98	Base Letter to HDOH Concerning Notice of Intent to Close USTs	Aoyama, Marc M 15 CES/CE-2	B372	9
147	KNMD-717	18 Aug 98	Base Memo Concerning Need for Approval on Press Release, ST-20, ST-38	Torchia, Linden J, LtCol 15 CES/CC	B281	9

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	Code#	Date	Title	Author	AR#	CD#
148	KNMD-685	07 Aug 98	HDOH Letter to Base Concerning Review of Draft Site Characterization Report, POL System Component Removals, Various UST Subsites	Salire, Teresita S Hawaii Department of Health	B214	4
149	KNMD-606	Aug 98	Executive Summary Work Plan, UST Verification and Removal, Ft Kamehameha, Addendum to Final Project Work Plans, Aug 97	OHM Remediation Services Corp.	B246	4
150	KNMD-683	31 Jul 98	HDOH Letter to Base Concerning Review of Draft Record of Closure, POL System Component Removals, Various UST Subsites	Salire, Teresita S Hawaii Department of Health	B211	4
151	KNMD-682	23 Jul 98	HDOH Letter to Base Concerning Review of Draft Record of Closure, POL System Component Removals, Various UST Subsites	Salire, Teresita S Hawaii Department of Health	B209	4
152	KNMD-345	Jul 98	Site Characterization, Final Report, Existing and Proposed Fuel Distribution System	Ogden Environmental and Energy Services Co., Inc.	B203	4
153	KNMD-676	29 Jun 98	HDOH Letter to Base Concerning Review of Draft Base Hydrogeology and Regional Mapping Report, Underground Fuel Storage and Distribution Systems	Salire, Teresita S Hawaii Department of Health	B200	4
154	KNMD-677	29 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda 5, Site Specific FSP, Runway 8L, EE/CA, ST-26	Salire, Teresita S Hawaii Department of Health	B201	4
155	KNMD-673	15 Jun 98	Base Letter to HDLNR Concerning Section 106 Review EE/CA, ST-26	Aoyama, Marc M 15 CES/CE-2	B197	4
156	KNMD-672	12 Jun 98	Base Letter to HDOT Concerning Proposed Field Work, ST-26	Aoyama, Marc M 15 CES/CE-2	B196	4
157	KNMD-671	05 Jun 98	HDOT Letter to Base Concerning Proposed Field Work, ST-26	Schlapak, Benjamin R Hawaii Department of Transportation	B195	4
158	KNMD-509	19 May 98	RAB Meeting Minutes, Hickam, 17 Nov 97	15 CES/CEVR	B190	4
159	KNMD-187	May 98	Final Base Hydrogeology and Regional Mapping Report, Underground Fuel Storage and Distribution Systems	OHM Remediation Services Corp.	B220	4
160	KNMD-514	09 Mar 98	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B181	4
161	KNMD-222	Mar 98	Final Comprehensive Historical Review of Underground POL Systems	Wil Chee-Planning, Inc.	B180	5
162	KNMD-778	26 Feb 98	Installation Action Plan, Fort Kamehameha	15 CES/CEVR	B368	9
163	KNMD-285	Feb 98	Geophysical Survey Results, Final Report, Delineation of Buried Metal	Parsons Engineering Science, Inc.	B176	5
164	ABWM-222	Feb 98	Fact Sheet, Environmental, Kipapa Fuel Storage Annex	15 CES/CEVR	A052	9

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	Code#	Date	Title	Author	AR#	CD#
165	KNMD-662	22 Jan 98	HDLNR Letter to Base Concerning ITIR, ST-26	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B175	5
166	KNMD-660	08 Jan 98	Base Letter to HDOT Concerning ITIR, ST-26	Aoyama, Marc M 15 CES/CE-2	B173	5
167	ABWM-219	Jan 98	Fact Sheet, Enviro Technology, Innovative Bioslurping Technique Treats Petroleum in Soil at Air Force Sites	15 CES/CEVR	A049	9
168	ABWM-220	Jan 98	Fact Sheet, Enviro Technology, Air Force Uses Bioslurping to Remove Underground Fuels	15 CES/CEVR	A050	9
169	KNMD-507	10 Dec 97	RAB Meeting Minutes, Hickam, 26 Aug 97	15 CES/CEVR	B169	5
170	KNMD-508	10 Dec 97	RAB Meeting Minutes, Hickam, 22 Oct 97	15 CES/CEVR	B170	5
171	KNMD-657	17 Nov 97	Environmental Restoration Program, Hickam, RAB Charter	15 CES/CEVR	B167	5
172	KNMD-513	16 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B166	5
173	KNMD-512	12 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B165	5
174	KNMD-283	07 Oct 97	Final UST Work Plan, Site HSP, Dorm 1172	Island Environmental, Inc.	B162	5
175	KNMD-655	22 Sep 97	HDOH Letter to Base Concerning Observation of Field Tank Activities	Chang, Steven YK Hawaii Department of Health	B161	5
176	KNMD-654	08 Sep 97	HDOH Letter to Base Concerning Closure of USTs	Sadoyama, Eric Hawaii Department of Health	B160	5
177	ABWM-170	Sep 97	Final, Updated Work Plan, Archaeological Survey, Performance Evaluation Samples and Third Party Data Validation	The Environmental Company, Inc.	A047	9
178	KNMD-511	24 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B157	5
179	KNMD-510	20 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B156	5
180	KNMD-649	11 Aug 97	USFWS Letter to Base Concerning Informal Section 7 Consultations for POL System Component Removals and Verification Sampling Projects	Harper, Brooks US Fish and Wildlife Service	B151	5
181	KNMD-648	05 Aug 97	HDOH Letter to Base Concerning Closure of USTs	Olmsted, Gregory K Hawaii Department of Health	B150	5
182	KNMD-278	Aug 97	Final Project Work Plans, Quality Program Plan, UST Verification, Removal, Soil Excavation, Transportation, Vol I of V	OHM Remediation Services Corp.	B145	5
183	KNMD-279	Aug 97	Final Project Work Plans, Waste Management Plan, UST Verification, Removal, Soil Excavation, Transportation, Vol II of V	OHM Remediation Services Corp.	B146	5

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	Code#	Date	Title	Author	AR#	CD#
184	KNMD-281	Aug 97	Final Project Work Plans, General Work Plan, Pre-Screening and Verification Sampling, UST Verification, Removal, Soil Excavation, Transportation, Vol IV of V	OHM Remediation Services Corp.	B148	5
185	KNMD-280	Aug 97	Final Project Work Plans, General Work Plan, POL System Component Removal, UST Verification, Removal, Soil Excavation, Transportation, Vol III of V	OHM Remediation Services Corp.	B147	5
186	KNMD-282	Aug 97	Final Project Work Plans, Data Management Plan, UST Verification, Removal, Soil Excavation, Transportation, Vol V of V	OHM Remediation Services Corp.	B149	5
187	KNMD-647	15 Jul 97	Base Letter to Distribution Concerning EE/CA, Final Work Plan, Sites Along Runway 8L	Okazaki, Robert M 15 CES/CE-2	B144	6
188	KNMD-277	Jul 97	Final Critical Process Map, Underground Fuel Storage and Distribution Systems	OHM Remediation Services Corp.	B143	6
189	KNMD-502	19 May 97	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106, EE/CA, Runway 8L	Wilson, Michael D Hawaii Department of Land and Natural Resources	B140	6
190	KNMD-646	14 May 97	USFWS Letter to Base Concerning Informal Section 7 Consultations for Environmental Investigations	Harper, Brooks US Fish and Wildlife Service	B139	6
191	KNMD-501	08 May 97	TRC Meeting Minutes, 02 Apr 97	15 CES/CEVR	B138	6
192	KNMD-177	May 97	EE/CA, Final Work Plan, Sites Along Runway 8L	CH2M Hill, Inc.	B136	6
193	KNMD-178	May 97	Archaeological Survey, Performance Evaluation Samples, Third Party Data Validation, Final Work Plan	The Environmental Company, Inc.	B137	6
194	ABWM-168	Apr 97	Final Installation-Wide FSP	CH2M Hill, Inc.	A046	9
195	KNMD-645	24 Mar 97	HDOH Letter to Base Concerning EE/CA, Draft Final Work Plan, Sites Along Runway 8L	Olmsted, Gregory K Hawaii Department of Health	B135	6
196	KNMD-642	21 Mar 97	HDOH Letter to Base Concerning Draft Basewide FSP	Olmsted, Gregory K Hawaii Department of Health	B132	6
197	KNMD-640	12 Mar 97	RAB Meeting Minutes, Hickam, 26 Feb 97	15 CES/CEVR	B130	6
198	KNMD-639	26 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B129	6
199	KNMD-638	24 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B128	6
200	KNMD-637	19 Feb 97	HDOH Letter to Base Concerning PA/SI, Draft Report, Vol I-II	Olmsted, Gregory K Hawaii Department of Health	B127	6
201	KNMD-636	10 Feb 97	RAB Meeting Minutes, Hickam, 29 Jan 97	15 CES/CEVR	B126	6

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	Code#	Date	Title	Author	AR#	CD#
202	KNMD-635	04 Nov 96	HDOH Letter to Base Concerning Review of Soil Sampling and Analysis Report, Bldg 2155, 2192	Olmsted, Gregory K Hawaii Department of Health	B124	6
203	KNMD-173	Nov 96	Final Management Action Plan, Hickam	CH2M Hill, Inc.	B120	4
204	KNMD-174	Nov 96	PA/SI, Draft Report, Vol I of II, Technical Report, Appendices A-D	EA Engineering, Science, and Technology, Inc.	B121	4
205	KNMD-175	Nov 96	PA/SI, Draft Report, Vol II of II, Technical Report, Appendices E-F	EA Engineering, Science, and Technology, Inc.	B122	6
206	KNMD-176	Nov 96	PA/SI, Draft Report, Appendices G-L, Vol II of II	EA Engineering, Science, and Technology, Inc.	B123	4
207	KNMD-506	28 Oct 96	RAB Meeting Minutes, Hickam, 10 Sep 96	15 CES/CEVR	B119	4
208	KNMD-633	10 Oct 96	Newspaper Article, "Hickam Air Force Base Environmental Cleanup"	The Honolulu Advertiser	B117	4
209	ABWM-217	Oct 96	Fact Sheet, Environmental, Relative Risk	15 CES/CEVR	A045	9
210	ABWM-184	30 Aug 96	Results of Multi-Site Field Treatability Test, Bioslurping	Battelle	A044	9
211	ABWM-216	02 Jun 96	Newspaper Article, "Air Force Assesses Contamination Risks, Study Would Help in Cleanup Plans"	The Honolulu Advertiser	A043	9
212	KNMD-161	Feb 96	Final Environmental Baseline Survey, Runway 8L-26R	HQ AFCEE	B103	6
213	KNMD-162	Feb 96	PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	EA Engineering, Science, and Technology, Inc.	B104	6
214	KNMD-628	05 Dec 95	HDLNR Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Wilson, Michael D Hawaii Department of Land and Natural Resources	B102	6
215	KNMD-626	30 Nov 95	USFWS Letter to Base Concerning Limited Field Investigation	Harper, Brooks US Fish and Wildlife Service	B100	6
216	KNMD-627	30 Nov 95	Base Letter to HDOH, University of Hawaii, EPA Concerning PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	Strom, Randie A, LtCol 15 CES/CEVR	B101	6
217	KNMD-625	27 Nov 95	HDLNR Letter to Base Concerning Section 106 Review	Hibbard, Don Hawaii Department of Land and Natural Resources	B099	6
218	ABWM-212	30 Oct 95	EPA Letter to Base Concerning Meeting to Discuss Oahu Plantation Superfund Site	Opalski, Pam Cooper, David EPA Region IX	A038	9
219	KNMD-624	27 Oct 95	USGS Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Meyer, William US Geological Survey	B098	6
220	KNMD-621	16 Oct 95	EPA Letter to Base Concerning Review of PA/SI, Draft FSP for Limited Field Investigation	Schutz, Michelle EPA Region IX	B095	6

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	Code#	Date	Title	Author	AR#	CD#
221	KNMD-622	16 Oct 95	University of Hawaii Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol I	Fujioka, Roger S, PhD University of Hawaii, Water Resources Research Center	B096	6
222	ABWM-208	07 Sep 95	HDLNR Letter to Base Concerning Comments on PA/SI, RI/FS	Wilson, Michael D Hawaii Department of Land and Natural Resources	A034	9
223	KNMD-620	04 Aug 95	USGS Letter to Base Concerning Final SAP, Final Work Plan, and Final Investigation Derived Waste Management for PA/SI	Meyer, William US Geological Survey	B093	3
224	KNMD-619	12 Jul 95	Base Letter to Distribution Concerning Comment Resolution for Risk Screening Evaluations	Strom, Randie A, LtCol 15 CES/CEV	B092	3
225	KNMD-608	Jul 95	Drum Removal and Investigation Report, Ft Kamehameha	611 CES/CEOR	B091	3
226	KNMD-762	Jul 95	SOW, Community Relations Program	HQ AFCEE	B352	6
227	ABWM-001	Jul 95	Community Relations Plan	EA Engineering, Science, and Technology, Inc.	A004	2
228	ABWM-153	Jul 95	PA/SI, Final Work Plan	EA Engineering, Science, and Technology, Inc.	A032	9
229	KNMD-616	16 Jun 95	HDOH Letter to Base Concerning Review of Risk Screening Evaluations	Olmsted, Gregory K Hawaii Department of Health	B088	3
230	KNMD-617	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B089	3
231	ABWM-207	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations Subset for RAB Review	Schutz, Michelle EPA Region IX	A031	9
232	ABWM-120	Jun 95	PA/SI, RI/FS, Final SAP	EA Engineering, Science, and Technology, Inc.	A023	9
233	ABWM-121	Jun 95	PA/SI, Final Waste Management Plan	15 CES/CEVR	A028	9
234	ABWM-163	05 May 95	Final Aerial Photograph Review Summary Report	Montgomery Watson	A020	9
235	KNMD-615	01 May 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B087	3
236	ABWM-116	May 95	Final Risk Screening Evaluations Report, Vol I of IV	EA Engineering, Science, and Technology, Inc.	A024	9
237	ABWM-117	May 95	Final Risk Screening Evaluations Report, Vol II of IV	EA Engineering, Science, and Technology, Inc.	A025	9
238	ABWM-118	May 95	Final Risk Screening Evaluations Report, Vol III of IV	EA Engineering, Science, and Technology, Inc.	A026	9
239	ABWM-119	May 95	Final Risk Screening Evaluations Report, Vol IV of IV	EA Engineering, Science, and Technology, Inc.	A027	9
240	ABWM-114	May 95	Final Risk Screening Evaluations Report, Subset for Review by RAB	EA Engineering, Science, and Technology, Inc.	A021	9

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	Code#	Date	Title	Author	AR#	CD#
241	ABWM-115	May 95	Final Ranking of Sites by Potential for Risk	15 CES/CEVR	A022	9
242	KNMD-614	30 Mar 95	USFWS Letter to Base Concerning Comments on Draft Risk Screening Evaluations	Harper, Brooks US Fish and Wildlife Service	B086	3
243	KNMD-613	17 Mar 95	EPA Letter to Base Concerning Comments on PA/SI, Work Plan and SAP	Schutz, Michelle EPA Region IX	B085	3
244	ABWM-204	02 Mar 95	NOAA Letter to Base Concerning Comments on SAP and Work Plan	Naughton, John J National Oceanic and Atmospheric Administration	A019	9
245	KNMD-248	Dec 94	Hazardous and Non-Hazardous Materials Waste Plan	Environmental Sciences - Pacific, Inc.	B079	3
246	ABWM-096	Dec 94	Final Management Action Plan, Executive Summary	EA Engineering, Science, and Technology, Inc.	A003	2
247	ABWM-203	21 Oct 94	USFWS Letter to Base Concerning Endangered and Threatened Species, Federally Listed, Proposed and Candidate	Harper, Brooks US Fish and Wildlife Service	A018	9
248	ABWM-182	Oct 94	PA/SI, RI/FS, Final HSP	EA Engineering, Science, and Technology, Inc.	A017	9
249	ABWM-113	Sep 94	PA/SI, Draft Work Plan	EA Engineering, Science, and Technology, Inc.	A016	9
250	KNMD-065	Aug 94	Phase I, Environmental Baseline Survey for Proposed Land Transfer of Runway 8L-26R	USACE - Pacific Ocean	B074	6
251	KNMD-246	Jul 94	SI, Limited Source Removal, Field Analytical Report, Vol I of II, Text, SS-13, ST-27	611 CES/CEOR	B072	3
252	KNMD-247	Jul 94	SI, Limited Source Removal, Field Analytical Report, Vol II of II, Analytical Results, SS-13, ST-27	611 CES/CEOR	B073	6
253	ABWM-064	Jul 94	Draft Site Characterization Report, Risk Screening	Engineering Sciences, Inc.	A013	9
254	ABWM-103	Jul 94	Draft SAP	EA Engineering, Science, and Technology, Inc.	A014	9
255	ABWM-104	Jul 94	Draft QAPP	EA Engineering, Science, and Technology, Inc.	A015	9
256	KNMD-091	Jun 94	Interim Site Characterization, Final Report, Building 2183, Par 3 Golf Course and Pearl City POL Pipeline Leak, SS-11, SS-15, ST-34	EA Engineering, Science, and Technology, Inc.	B071	3
257	ABWM-085	Dec 93	Final Management Action Plan, Executive Summary	Engineering-Sciences, Inc.	A002	2
258	ABWM-201	Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	A006	2
259	ABWM-044	Jun 93	PA, Draft Report, UST	Engineering Sciences, Inc.	A011	9
260	ABWM-034	Feb 93	PA, Final Work Plan, UST	Engineering Sciences, Inc.	A010	9
261	KNMD-032	Oct 92	Final Submittal for Phase B Engineering Design	Chem-Nuclear Geotech, Inc.	B050	2

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	Code#	Date	Title	Author	AR#	CD#
262	KNMD-028	May 92	RA, Phase B Work Plan for Closure of 23 UST Sites	Chem-Nuclear Geotech, Inc.	B045	2
263	KNMD-026	Apr 92	Response to HDOH Comments on RA, Work Plan	Chem-Nuclear Geotech, Inc.	B044	2
264	KNMD-607	26 Nov 91	PA, Screening Report, Fort Kamehameha Military Reservation	SAF/MIIR	B041	2
265	KNMD-020	Sep 91	NFRAP, Final Decision Document, 37 Heating-Oil Storage Tank Sites	Chem-Nuclear Geotech, Inc.	B036	2
266	KNMD-021	Sep 91	NFRAP, Final Decision Document, Storage Tank Sites 422, 936, 1046, 1152, 3023, AVPA	Chem-Nuclear Geotech, Inc.	B037	2
267	KNMD-022	Sep 91	NFRAP, Final Decision Document, UST Sites 1250, 1257	Chem-Nuclear Geotech, Inc.	B038	2
268	ABWM-152	Sep 91	Final Preliminary Evaluation Report, UST Tightness Testing Program	Galson, Corp.	A009	9
269	KNMD-014	Aug 91	Final Submittal for Phase A Engineering Design	Chem-Nuclear Geotech, Inc.	B029	2
270	KNMD-015	Aug 91	Response to Comments on SI, Draft Report, Dec 90	Chem-Nuclear Geotech, Inc.	B030	2
271	KNMD-016	Aug 91	SI, UST Report, Vol I of V	Chem-Nuclear Geotech, Inc.	B031	2
272	KNMD-009	Aug 91	SI, UST Report, Results of Geophysical Investigation, Vol II of V, Appendix C	Chem-Nuclear Geotech, Inc.	B032	2
273	KNMD-017	Aug 91	SI, UST Report, Analytical Laboratory Results and Documentation, Vol III of V, Appendix D	Chem-Nuclear Geotech, Inc.	B033	2
274	KNMD-018	Aug 91	SI, UST Report, Analytical Laboratory Results and Documentation, Vol IV of V, Appendix D	Chem-Nuclear Geotech, Inc.	B034	2
275	KNMD-019	Aug 91	SI, UST Report, Analytical Laboratory Results and Documentation, Vol V of V, Appendix D	Chem-Nuclear Geotech, Inc.	B035	2

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1.	ABWM-000	07 Sep 01	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	A001	1
2.	KNMD	11 Jul 01	Newspaper Article, "Meetings, RAB Meeting Announcement"	The Honolulu Midweek	B474	12
3.	KNMD	Jul 01	Removal Action, Technical Memorandum Report, Pilot Study Data Summary, SS-11	CH2M Hill, Inc.	B470	12
4.	KNMD	24 May 01	RAB Meeting Minutes, Hickam, 12 Apr 01	Tayon, James E 15 CES/CEV	B465	12
5.	KNMD	21 May 01	Newspaper Article, "Public Comment Period on Hickam AFB Draft Reports, Public Notice"	The Honolulu Midweek	B464	12
6.	KNMD	20 May 01	Newspaper Article, "Public Comments Period on Hickam AFB Draft Reports, Public Notice"	The Honolulu Star-Bulletin	B463	12
7.	KNMD	18 May 01	Newspaper Article, "Fueling Innovation"	The Hickam Kukini	B461	12
8.	ABWM-200	May 01	Community Relations Plan	15 CES/CEVR	A033	9
9.	KNMD	16 Mar 01	RAB Meeting Minutes, Hickam, 08 Feb 01	Tayon, James E 15 CES/CEV	B448	12
10.	KNMD	07 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Midweek	B446	12
11.	KNMD	04 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B447	12
12.	KNMD	16 Feb 01	Newspaper Article, "Bioslurper"	The Hickam Kukini	B445	12
13.	KNMD-836	09 Feb 01	Final Site Characterization Report, SS-15	Brewer Environmental Industries, Inc.	B433 Part 1	9
14.	KNMD-839	09 Feb 01	Final Site Characterization Report, Vol I of II, SS-13	Brewer Environmental Industries, Inc.	B436	9
15.	KNMD-840	09 Feb 01	Final Site Characterization Report, Vol II of II, SS-13	Brewer Environmental Industries, Inc.	B437 Part 1	10
16.	KNMD-836	09 Feb 01	Final Site Characterization Report, SS-15	Brewer Environmental Industries, Inc.	B433 Part 2	9
17.	KNMD-840	09 Feb 01	Final Site Characterization Report, Vol II of II, SS-13	Brewer Environmental Industries, Inc.	B437 Part 2	10
18.	KNMD	05 Feb 01	Newspaper Article, "Military Briefing, Air Force, Fuel Recovery to be Discussed"	The Honolulu Advertiser	B444	12
19.	KNMD	02 Feb 01	Newspaper Article, "Hickam Community Can Learn About Environment"	The Hickam Kukini	B443	12
20.	KNMD-830	12 Jan 01	USFWS Letter to Base Concerning Interim Removal Actions, Runway 8I Sites, and Pipeline Abandonment Activities	Henson, Paul US Fish and Wildlife Service	B427	9
21.	KNMD-825	08 Dec 00	Multi-Phase Extraction Pilot Study Plan, SS-11	CH2M Hill, Inc.	B421	9
22.	KNMD-824	Dec 00	Management Action Plan, Hickam	15 CES/CEVR	B420	9

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23.	KNMD-821	16 Nov 00	Base Letter to Life of the Land Concerning Response to Comments on Site Characterization Report, SS-13	Tayon, James E 15 CES/CEV	B417	9
24.	KNMD-813	23 Oct 00	Interim Removal Actions, Work Plan, Runway 8L Sites	CH2M Hill, Inc.	B409	9
25.	KNMD-809	10 Oct 00	Base Letter to HDOH Concerning Response to Comments on Site Characterization Report, SS-13	Tayon, James E 15 CES/CEV	B404	9
26.	KNMD-810	10 Oct 00	Base Letter to HDOH Concerning Response to Comments on Site Characterization Report, SS-15	Tayon, James E 15 CES/CEV	B405	9
27.	KNMD-806	04 Oct 00	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, Interim Removal Action, Runway 8L	Johns, Timothy E Hawaii Department of Land and Natural Resources	B401	9
28.	ABWM-187	11 Sep 00	SI, Final Critical Process Map, Closure	CH2M Hill, Inc.	A074	9
29.	KNMD-233	16 Jun 00	Updated Monitoring Well Management Log, SS-15	Brewer Environmental Industries, Inc.	B341	5
30.	KNMD-753	08 May 00	HDOH Letter to Base Concerning Review of Site Characterization, Draft Report, SS-15	Salire, Teresita S Hawaii Department of Health	B340	5
31.	KNMD-750	27 Jan 00	HDOH Letter to Base Concerning Review of Site Characterization, Draft Report, SS-13	Salire, Teresita S Hawaii Department of Health	B337	8
32.	KNMD-363	30 Dec 99	Final Action Memorandum, SS-11	CH2M Hill, Inc.	B319	5
33.	KNMD-359	30 Dec 99	NFRAP, Final Decision Document, SS-23	CH2M Hill, Inc.	B333	5
34.	KNMD-741	30 Nov 99	RAB Meeting Minutes, Hickam, 29 Sep 99	15 CES/CE-2	B312	5
35.	KNMD-352	19 Nov 99	EE/CA, Sites Along Runway 8L, Final Report, SS-11	CH2M Hill, Inc.	B327	4
36.	ABWM-237	15 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri-RAB Conference"	Honolulu HS&CPN	A071	9
37.	ABWM-236	14 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri RAB Conference"	The Honolulu Advertiser	A070	9
38.	KNMD-736	26 Sep 99	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B305	5
39.	KNMD-735	21 Sep 99	Base Letter to HDOH Concerning Responses to Comments on EE/CA and NFRAP Planned Documents	Aoyama, Marc M 15 CES/CE-2	B304	5
40.	ABWM-234	Sep 99	Fact Sheet, Enviro Technology, Air Force Samples Soil, Water and Sediment to Assess Environmental Impacts	15 CES/CEVR	A067	9
41.	ABWM-235	Sep 99	Fact Sheet, Enviro Technology, Groundwater Sampling Provides Data Critical to Environmental Restoration Decisions	15 CES/CEVR	A068	9

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42.	ABWM-233	19 Aug 99	SAF/MIQ Letter to Base Concerning Environmental Data From Intertek Testing Services Environmental Laboratories	McCall, Thomas WL, Jr SAF/MIQ	A066	9
43.	KNMD-731	17 Aug 99	HDOH Letter to Base Concerning Review of Draft MAP, Executive Summary	Salire, Teresita S Hawaii Department of Health	B300	5
44.	KNMD-727	05 Aug 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Final Report, SS-11	Salire, Teresita S Hawaii Department of Health	B295	5
45.	KNMD-726	03 Aug 99	USGS Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Klein, John M US Geological Survey	B294	5
46.	KNMD-721	22 Jul 99	HDOT Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Schlapak, Benjamin R Hawaii Department of Transportation	B289	5
47.	ABWM-177	16 Jul 99	Final Critical Process Map, UST Program	IT Corp.	A063	9
48.	KNMD-769	04 Jul 99	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B360	6
49.	ABWM-231	Jul 99	National Caucus, RAB Meeting Minutes, 17 -21 Jul 99	ARC Ecology	A064	9
50.	KNMD-715	21 May 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Report, SS-11	Salire, Teresita S Hawaii Department of Health	B279	5
51.	ABWM-230	14 May 99	HDOH Letter to Base Concerning Comments on Draft Critical Process Map, UST Program	Salire, Teresita S Hawaii Department of Health	A062	9
52.	ABWM-229	26 Apr 99	HQ USEPA Letter to SAF Concerning Reprocessing Data From Laboratories	Wentworth, Nancy W HQ USEPA	A061	9
53.	KNMD-711	02 Mar 99	HDOH Letter to Base Concerning Review of Draft Critical Process Map, FY98 Subsurface Plume RD, LTM/LTO of Monitoring and Recovery Wells	Salire, Teresita S Hawaii Department of Health	B275	5
54.	KNMD-710	01 Mar 99	Base Letter to Residents Concerning Cleanup Subsurface Contamination	Ingenloff, Richard J, Col 15 ABW/CC	B274	5
55.	ABWM-176	Mar 99	Final Management Action Plan, Executive Summary	15 CES/CEVR	A005	2
56.	KNMD-194	26 Feb 99	EE/CA, Sites Along Runway 8L, ITIR, SS-11	CH2M Hill, Inc.	B273	5
57.	KNMD-236	25 Jan 99	Well Maintenance, Final Report, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B269	5
58.	KNMD-234	20 Jan 99	Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells	Brewer Environmental Industries, Inc.	B267	5
59.	KNMD-231	15 Jan 99	Monitoring Well Management Log, SS-06	Brewer Environmental Industries, Inc.	B265	5
60.	KNMD-232	15 Jan 99	Monitoring Well Management Log, SS-13	Brewer Environmental Industries, Inc.	B266	5

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61.	KNMD-709	06 Jan 99	HDLNR Letter to Base Concerning Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells	Wilson, Michael D Hawaii Department of Land and Natural Resources	B263	5
62.	ABWM-228	Jan 99	Tri RAB Meeting Minutes, 09 Jan 99	15 CES/CEVR	A060	9
63.	KNMD-704	07 Dec 98	Base Letter to HDOH Concerning Responses to Reviewer Comments, Sites Landfill Areas, SS-11, OT-02, SS-23, SD-36A	Torchia, Linden J, LtCol 15 CES/CE-2	B254	6
64.	KNMD-699	27 Oct 98	USGS Letter to Base Concerning Review of Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Meyer, William US Geological Survey	B236	4
65.	KNMD-698	23 Oct 98	HDOH Letter to Base Concerning Review of Draft Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Salire, Teresita S Hawaii Department of Health	B235	4
66.	ABWM-226	02 Oct 98	HQ AFCEE Letter to HQ AFBCA Concerning Intertek Testing Services Data Issues	Selstrom, John P, Jr, Col HQ AFCEE/ER	A058	9
67.	ABWM-185	Oct 98	Final, Installation-Wide, QAPP, Version 1.0	CH2M Hill, Inc.	A056	9
68.	ABWM-186	Oct 98	Final, Installation-Wide, FSP, Version 2.0	CH2M Hill, Inc.	A057	9
69.	KNMD-694	30 Sep 98	HDOT Letter to Base Concerning Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Schlapak, Benjamin R Hawaii Department of Transportation	B225	4
70.	KNMD-695	30 Sep 98	HDOH Letter to Base Concerning Review of Installation Wide FSP and QAPP for Multiple Projects	Hataoka, Bryce Hawaii Department of Health	B226	4
71.	ABWM-225	30 Sep 98	HDOH Letter to Base Concerning No Comments on Installation Wide FSP, QAPP	Hataoka, Bryce Hawaii Department of Health	A055	9
72.	KNMD-690	10 Sep 98	HDLNR Letter to Base Concerning Review of Draft ITIR, SS-23	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B221	4
73.	KNMD-227	28 Aug 98	Passive Soil Gas Survey, Subsurface Plume Monitoring, LTM, O&M and Recovery Wells	Brewer Environmental Industries, Inc.	B219	4
74.	KNMD-687	25 Aug 98	HDOH Letter to Base Concerning Review of ITIR, SS-23	Salire, Teresita S Hawaii Department of Health	B216	4
75.	KNMD-678	14 Jul 98	HDOH Letter to Base Concerning Review of Draft Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01, SS-13, SS-15	Salire, Teresita S Hawaii Department of Health	B205	4

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76.	KNMD-680	14 Jul 98	HDLNR Letter to Base Concerning Draft Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01, SS-13, SS-15	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B207	4
77.	KNMD-345	Jul 98	Site Characterization, Final Report, Existing and Proposed Fuel Distribution System	Ogden Environmental and Energy Services Co., Inc.	B203	4
78.	KNMD-185	30 Jun 98	EE/CA, Sites Along Runway 8L, ITIR, SS-23	CH2M Hill, Inc.	B202	4
79.	KNMD-675	23 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda No 4, Site Specific FSP, Runway 8L, EE/CA, SS-11	Salire, Teresita S Hawaii Department of Health	B199	4
80.	KNMD-509	19 May 98	RAB Meeting Minutes, Hickam, 17 Nov 97	15 CES/CEVR	B190	4
81.	KNMD-669	18 May 98	HDOH Letter to Base Concerning Review of Draft Report, Passive Soil Gas Survey, SS-13, SS-15	Salire, Teresita S Hawaii Department of Health	B189	4
82.	KNMD-335	05 May 98	EE/CA, Technical Memorandum for Continuous Water Level Monitoring at Five Runway 8L Sites	CH2M Hill, Inc.	B188	4
83.	KNMD-223	01 Apr 98	SI, Site Characterization Report, Fuel Lines Near Hydrant Control Pits 1 and 3, Vol I of II	Brewer Environmental Industries, Inc.	B183	4
84.	KNMD-224	01 Apr 98	SI, Site Characterization Report, Fuel Lines Near Hydrant Control Pits 1 and 3, Vol II of II	Brewer Environmental Industries, Inc.	B184 Part 1	4
85.	KNMD-224	01 Apr 98	SI, Site Characterization Report, Fuel Lines Near Hydrant Control Pits 1 and 3, Vol II of II	Brewer Environmental Industries, Inc.	B184 Part 2	4
86.	KNMD-514	09 Mar 98	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B181	4
87.	KNMD-222	Mar 98	Final Comprehensive Historical Review of Underground POL Systems	Wil Chee-Planning, Inc.	B180	5
88.	KNMD-778	26 Feb 98	Installation Action Plan, Fort Kamehameha	15 CES/CEVR	B368	9
89.	ABWM-219	Jan 98	Fact Sheet, Enviro Technology, Innovative Bioslurping Technique Treats Petroleum in Soil at Air Force Sites	15 CES/CEVR	A049	9
90.	ABWM-220	Jan 98	Fact Sheet, Enviro Technology, Air Force Uses Bioslurping to Remove Underground Fuels	15 CES/CEVR	A050	9
91.	KNMD-507	10 Dec 97	RAB Meeting Minutes, Hickam, 26 Aug 97	15 CES/CEVR	B169	5
92.	KNMD-508	10 Dec 97	RAB Meeting Minutes, Hickam, 22 Oct 97	15 CES/CEVR	B170	5
93.	KNMD-220	Dec 97	Conceptual Work Plan, Passive Soil Gas Survey, Soil and Groundwater Sampling	Ogden Environmental and Energy Services Co., Inc.	B168	5
94.	KNMD-657	17 Nov 97	Environmental Restoration Program, Hickam, RAB Charter	15 CES/CEVR	B167	5

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95.	KNMD-513	16 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B166	5
96.	KNMD-512	12 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B165	5
97.	KNMD-216	10 Oct 97	Work Plan, Subsurface Plume Monitoring and LTM and Operations of Monitoring and Recovery Wells	Brewer Environmental Industries, Inc.	B163	5
98.	ABWM-170	Sep 97	Final, Updated Work Plan, Archaeological Survey, Performance Evaluation Samples and Third Party Data Validation	The Environmental Company, Inc.	A047	9
99.	KNMD-511	24 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B157	5
100	KNMD-510	20 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B156	5
101	KNMD-647	15 Jul 97	Base Letter to Distribution Concerning EE/CA, Final Work Plan, Sites Along Runway 8L	Okazaki, Robert M 15 CES/CE-2	B144	6
102	KNMD-213	Jul 97	Archaeological Monitoring Plan, Monitoring and Sampling During Subsurface Plume Monitoring, SS-01, SS-13, SS-15	SCS/CRMS, Inc.	B142	6
103	KNMD-211	24 Jun 97	Critical Process Map, Subsurface Plume Monitoring, LTM, O&M, and Recovery Wells, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B141	6
104	KNMD-502	19 May 97	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106, EE/CA, Runway 8L	Wilson, Michael D Hawaii Department of Land and Natural Resources	B140	6
105	KNMD-646	14 May 97	USFWS Letter to Base Concerning Informal Section 7 Consultations for Environmental Investigations	Harper, Brooks US Fish and Wildlife Service	B139	6
106	KNMD-501	08 May 97	TRC Meeting Minutes, 02 Apr 97	15 CES/CEVR	B138	6
107	KNMD-177	May 97	EE/CA, Final Work Plan, Sites Along Runway 8L	CH2M Hill, Inc.	B136	6
108	KNMD-178	May 97	Archaeological Survey, Performance Evaluation Samples, Third Party Data Validation, Final Work Plan	The Environmental Company, Inc.	B137	6
109	ABWM-168	Apr 97	Final Installation-Wide FSP	CH2M Hill, Inc.	A046	9
110	KNMD-645	24 Mar 97	HDOH Letter to Base Concerning EE/CA, Draft Final Work Plan, Sites Along Runway 8L	Olmsted, Gregory K Hawaii Department of Health	B135	6
111	KNMD-642	21 Mar 97	HDOH Letter to Base Concerning Draft Basewide FSP	Olmsted, Gregory K Hawaii Department of Health	B132	6
112	KNMD-640	12 Mar 97	RAB Meeting Minutes, Hickam, 26 Feb 97	15 CES/CEVR	B130	6
113	KNMD-639	26 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B129	6
114	KNMD-638	24 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B128	6

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115	KNMD-637	19 Feb 97	HDOH Letter to Base Concerning PA/SI, Draft Report, Vol I-II	Olmsted, Gregory K Hawaii Department of Health	B127	6
116	KNMD-636	10 Feb 97	RAB Meeting Minutes, Hickam, 29 Jan 97	15 CES/CEVR	B126	6
117	KNMD-505	09 Dec 96	HDOH Letter to Base Concerning Request to Observe Field Activities at LF-05, SS-01, SS-13, SS-15	Olmsted, Gregory K Hawaii Department of Health	B125	6
118	KNMD-173	Nov 96	Final Management Action Plan, Hickam	CH2M Hill, Inc.	B120	4
119	KNMD-174	Nov 96	PA/SI, Draft Report, Vol I of II, Technical Report, Appendices A-D	EA Engineering, Science, and Technology, Inc.	B121	4
120	KNMD-175	Nov 96	PA/SI, Draft Report, Vol II of II, Technical Report, Appendices E-F	EA Engineering, Science, and Technology, Inc.	B122	6
121	KNMD-176	Nov 96	PA/SI, Draft Report, Appendices G-L, Vol II of II	EA Engineering, Science, and Technology, Inc.	B123	4
122	KNMD-506	28 Oct 96	RAB Meeting Minutes, Hickam, 10 Sep 96	15 CES/CEVR	B119	4
123	KNMD-209	27 Oct 96	Subsurface Plume Monitoring and Well Maintenance, LTO/LTM, Work Plan, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B116	4
124	KNMD-633	10 Oct 96	Newspaper Article, "Hickam Air Force Base Environmental Cleanup"	The Honolulu Advertiser	B117	4
125	ABWM-217	Oct 96	Fact Sheet, Environmental, Relative Risk	15 CES/CEVR	A045	9
126	KNMD-632	11 Sep 96	HDOH Letter to Base Concerning Subsurface Plume Monitoring and Well Maintenance, LTO/LTM, SS-01, SS-13, SS-15	Olmsted, Gregory K Hawaii Department of Health	B114	4
127	ABWM-184	30 Aug 96	Results of Multi-Site Field Treatability Test, Bioslurping	Battelle	A044	9
128	ABWM-216	02 Jun 96	Newspaper Article, "Air Force Assesses Contamination Risks, Study Would Help in Cleanup Plans"	The Honolulu Advertiser	A043	9
129	KNMD-161	Feb 96	Final Environmental Baseline Survey, Runway 8L-26R	HQ AFCEE	B103	6
130	KNMD-162	Feb 96	PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	EA Engineering, Science, and Technology, Inc.	B104	6
131	KNMD-628	05 Dec 95	HDLNR Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Wilson, Michael D Hawaii Department of Land and Natural Resources	B102	6
132	KNMD-626	30 Nov 95	USFWS Letter to Base Concerning Limited Field Investigation	Harper, Brooks US Fish and Wildlife Service	B100	6
133	KNMD-627	30 Nov 95	Base Letter to HDOH, University of Hawaii, EPA Concerning PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	Strom, Randie A, LtCol 15 CES/CEVR	B101	6

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134	KNMD-625	27 Nov 95	HDLNR Letter to Base Concerning Section 106 Review	Hibbard, Don Hawaii Department of Land and Natural Resources	B099	6
135	ABWM-212	30 Oct 95	EPA Letter to Base Concerning Meeting to Discuss Oahu Plantation Superfund Site	Opalski, Pam Cooper, David EPA Region IX	A038	9
136	KNMD-624	27 Oct 95	USGS Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Meyer, William US Geological Survey	B098	6
137	KNMD-621	16 Oct 95	EPA Letter to Base Concerning Review of PA/SI, Draft FSP for Limited Field Investigation	Schutz, Michelle EPA Region IX	B095	6
138	KNMD-622	16 Oct 95	University of Hawaii Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol I	Fujioka, Roger S, PhD University of Hawaii, Water Resources Research Center	B096	6
139	KNMD-205	20 Sep 95	Installation of Monitoring Wells, Soil Lithology Work Plan	Brewer Environmental Industries, Inc.	B094	6
140	ABWM-208	07 Sep 95	HDLNR Letter to Base Concerning Comments on PA/SI, RI/FS	Wilson, Michael D Hawaii Department of Land and Natural Resources	A034	9
141	KNMD-620	04 Aug 95	USGS Letter to Base Concerning Final SAP, Final Work Plan, and Final Investigation Derived Waste Management for PA/SI	Meyer, William US Geological Survey	B093	3
142	KNMD-619	12 Jul 95	Base Letter to Distribution Concerning Comment Resolution for Risk Screening Evaluations	Strom, Randie A, LtCol 15 CES/CEV	B092	3
143	KNMD-608	Jul 95	Drum Removal and Investigation Report, Ft Kamehameha	611 CES/CEOR	B091	3
144	KNMD-762	Jul 95	SOW, Community Relations Program	HQ AFCEE	B352	6
145	ABWM-001	Jul 95	Community Relations Plan	EA Engineering, Science, and Technology, Inc.	A004	2
146	ABWM-153	Jul 95	PA/SI, Final Work Plan	EA Engineering, Science, and Technology, Inc.	A032	9
147	KNMD-616	16 Jun 95	HDOH Letter to Base Concerning Review of Risk Screening Evaluations	Olmsted, Gregory K Hawaii Department of Health	B088	3
148	KNMD-617	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B089	3
149	ABWM-207	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations Subset for RAB Review	Schutz, Michelle EPA Region IX	A031	9
150	ABWM-205	16 Jun 95	USFWS Letter to Base Concerning Comments on Draft PA/SI, Limited Field Investigation	Harper, Brooks US Fish and Wildlife Service	A029	9

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151	ABWM-206	16 Jun 95	NOAA Letter to Base Concerning Comments on Preliminary Risk Ranking and Site Prioritization, PA/SI, Risk Screening Evaluations	Klimas, Denise M National Oceanic and Atmospheric Administration	A030	9
152	ABWM-120	Jun 95	PA/SI, RI/FS, Final SAP	EA Engineering, Science, and Technology, Inc.	A023	9
153	ABWM-121	Jun 95	PA/SI, Final Waste Management Plan	15 CES/CEVR	A028	9
154	ABWM-163	05 May 95	Final Aerial Photograph Review Summary Report	Montgomery Watson	A020	9
155	KNMD-615	01 May 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B087	3
156	ABWM-116	May 95	Final Risk Screening Evaluations Report, Vol I of IV	EA Engineering, Science, and Technology, Inc.	A024	9
157	ABWM-117	May 95	Final Risk Screening Evaluations Report, Vol II of IV	EA Engineering, Science, and Technology, Inc.	A025	9
158	ABWM-118	May 95	Final Risk Screening Evaluations Report, Vol III of IV	EA Engineering, Science, and Technology, Inc.	A026	9
159	ABWM-119	May 95	Final Risk Screening Evaluations Report, Vol IV of IV	EA Engineering, Science, and Technology, Inc.	A027	9
160	ABWM-114	May 95	Final Risk Screening Evaluations Report, Subset for Review by RAB	EA Engineering, Science, and Technology, Inc.	A021	9
161	ABWM-115	May 95	Final Ranking of Sites by Potential for Risk	15 CES/CEVR	A022	9
162	KNMD-614	30 Mar 95	USFWS Letter to Base Concerning Comments on Draft Risk Screening Evaluations	Harper, Brooks US Fish and Wildlife Service	B086	3
163	KNMD-613	17 Mar 95	EPA Letter to Base Concerning Comments on PA/SI, Work Plan and SAP	Schutz, Michelle EPA Region IX	B085	3
164	ABWM-204	02 Mar 95	NOAA Letter to Base Concerning Comments on SAP and Work Plan	Naughton, John J National Oceanic and Atmospheric Administration	A019	9
165	KNMD-248	Dec 94	Hazardous and Non-Hazardous Materials Waste Plan	Environmental Sciences - Pacific, Inc.	B079	3
166	ABWM-096	Dec 94	Final Management Action Plan, Executive Summary	EA Engineering, Science, and Technology, Inc.	A003	2
167	ABWM-203	21 Oct 94	USFWS Letter to Base Concerning Endangered and Threatened Species, Federally Listed, Proposed and Candidate	Harper, Brooks US Fish and Wildlife Service	A018	9
168	ABWM-182	Oct 94	PA/SI, RI/FS, Final HSP	EA Engineering, Science, and Technology, Inc.	A017	9
169	ABWM-113	Sep 94	PA/SI, Draft Work Plan	EA Engineering, Science, and Technology, Inc.	A016	9
170	KNMD-065	Aug 94	Phase I, Environmental Baseline Survey for Proposed Land Transfer of Runway 8L-26R	USACE - Pacific Ocean	B074	6
171	KNMD-246	Jul 94	SI, Limited Source Removal, Field Analytical Report, Vol I of II, Text, SS-13, ST-27	611 CES/CEOR	B072	3

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	Code#	Date	Title	Author	AR#	CD#
172	KNMD-247	Jul 94	SI, Limited Source Removal, Field Analytical Report, Vol II of II, Analytical Results, SS-13, ST-27	611 CES/CEOR	B073	6
173	ABWM-064	Jul 94	Draft Site Characterization Report, Risk Screening	Engineering Sciences, Inc.	A013	9
174	ABWM-103	Jul 94	Draft SAP	EA Engineering, Science, and Technology, Inc.	A014	9
175	ABWM-104	Jul 94	Draft QAPP	EA Engineering, Science, and Technology, Inc.	A015	9
176	KNMD-091	Jun 94	Interim Site Characterization, Final Report, Building 2183, Par 3 Golf Course and Pearl City POL Pipeline Leak, SS-11, SS-15, ST-34	EA Engineering, Science, and Technology, Inc.	B071	3
177	KNMD-774	02 Dec 93	In Situ Bioventing, Preliminary Results of Three Pilot Tests	Environmental Science and Engineering, Inc. 15 CES/CEV	B364	9
178	ABWM-085	Dec 93	Final Management Action Plan, Executive Summary	Engineering-Sciences, Inc.	A002	2
179	ABWM-201	Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	A006	2
180	KNMD-045	Aug 93	Bioventing Pilot Test Work Plan, Draft Interim Pilot Test Results Report, SS-01, LF-14, SS-15	Engineering-Sciences, Inc.	B062	3
181	KNMD-609	02 Dec 92	HDOH Letter to Base Concerning Soil Bioremediation Study	Aki, Paul F Hawaii Department of Health	B051	2
182	KNMD-125	Jun 92	Subsurface Hydrocarbon Investigation Report, SS-25	Masa Fujioka and Associates	B046	2
183	KNMD-024	26 Sep 91	PA/SI, Review Report	University of Hawaii Environmental Center	B040	2
184	KNMD-200	Jul 91	Pre-Construction Survey of Family Housing Project, Final Report	Kennedy/Jenks/Chilton	B028	2
185	KNMD-013	Apr 91	SI, Characterization, UST Work Plan Addendum	Chem-Nuclear Geotech, Inc.	B027	2
186	KNMD-008	16 Mar 89	SI, Characterization, UST Work Plan	Chem-Nuclear Geotech, Inc.	B023	2
187	KNMD-081	Oct 88	Subsurface Fuel Recovery, Monthly Update Report, Sep 88	Groundwater Technology, Inc.	B021	2
188	KNMD-079	Oct 88	Subsurface Fuel Recovery, Final Report, Project No 87-9111	Groundwater Technology, Inc.	B022	2
189	KNMD-078	Sep 88	Subsurface Fuel Recovery, Monthly Update Report, Aug 88	Groundwater Technology, Inc.	B020	2
190	KNMD-077	May 88	Subsurface Fuel Recovery, Monthly Update Report, May 88	Groundwater Technology, Inc.	B019	2
191	KNMD-074	15 Apr 88	Subsurface Fuel Recovery, Monthly Update Report, Mar 88	Groundwater Technology, Inc.	B016	2
192	KNMD-075	18 Mar 88	Subsurface Fuel Recovery, Monthly Update Report, Feb 88	Groundwater Technology, Inc.	B017	2
193	KNMD-073	23 Feb 88	Subsurface Fuel Recovery, Monthly Update Report, Jan 88	Groundwater Technology, Inc.	B015	2

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	Code#	Date	Title	Author	AR#	CD#
194	KNMD-072	15 Jan 88	Subsurface Fuel Recovery, Monthly Update Report, Dec 87	Groundwater Technology, Inc.	B014	2
195	KNMD-071	18 Dec 87	Subsurface Fuel Recovery, Monthly Update Report, Nov 87	Groundwater Technology, Inc.	B011	2
196	KNMD-070	16 Nov 87	Subsurface Fuel Recovery, Monthly Update Report, Oct 87	Groundwater Technology, Inc.	B010	2
197	KNMD-069	11 Nov 87	Subsurface Fuel Recovery, Maintenance Plan	Groundwater Technology, Inc.	B009	2
198	KNMD-068	27 Sep 87	Subsurface Fuel Recovery, Quality Control Procedures Report	Groundwater Technology, Inc.	B008	2
199	KNMD-067	12 Sep 86	Subsurface Fuel Recovery, Quarterly Update Report, May-Jul 86	Groundwater Technology, Inc.	B006	2
200	KNMD-080	07 Aug 86	Subsurface Fuel Recovery, Quarterly Update Report, Feb-Apr 86	Groundwater Technology, Inc.	B005	2
201	KNMD-196	Nov 85	SI, Final Report	Groundwater Technology, Inc.	B004	2
202	KNMD-082	Jun 84	Evaluation of Subsurface Conditions and Hydrocarbon Recovery Program Technical Proposal	Groundwater Technology, Inc.	B003	2
203	KNMD-001	Jul 83	Phase I, Records Search Report	Sam O Hirota, Inc.	B002	2
204	KNMD-066	Apr 83	Subsurface Fuel Detection Investigation Report	Ernest K Hirata & Associates, Inc.	B001	2

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1.	ABWM-000	07 Sep 01	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	A001	1
2.	KNMD	11 Jul 01	Newspaper Article, "Meetings, RAB Meeting Announcement"	The Honolulu Midweek	B474	12
3.	KNMD	06 Jul 01	Newspaper Article, "Hickam ERP Installs Second Bioslurper System in Two Years"	The Hickam Kukini	B471	12
4.	KNMD	28 Jun 01	Final Work Plan, Construction, Start-Up and Operation, MPX Bioslurp System, SS-01	Roy F Weston, Inc.	B467	12
5.	KNMD	24 May 01	RAB Meeting Minutes, Hickam, 12 Apr 01	Tayon, James E 15 CES/CEV	B465	12
6.	KNMD	18 May 01	Newspaper Article, "Fueling Innovation"	The Hickam Kukini	B461	12
7.	ABWM-200	May 01	Community Relations Plan	15 CES/CEVR	A033	9
8.	KNMD	Apr 01	Final Skimmer Systems Summary Report, Nov 97-Feb 00	Brewer Environmental Industries, Inc.	B449	12
9.	KNMD	Apr 01	FS, Final Recovered Fuel and Ice Alternatives, SS-01	Brewer Environmental Industries, Inc.	B450	12
10.	KNMD	Apr 01	Final Site Characterization Report, SS-01	Brewer Environmental Industries, Inc.	B451	12
11.	KNMD	16 Mar 01	RAB Meeting Minutes, Hickam, 08 Feb 01	Tayon, James E 15 CES/CEV	B448	12
12.	KNMD	07 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Midweek	B446	12
13.	KNMD	04 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B447	12
14.	KNMD	16 Feb 01	Newspaper Article, "Bioslurper"	The Hickam Kukini	B445	12
15.	KNMD-837	09 Feb 01	Well Maintenance Report, 01 Jan-31 Dec 00, SS-01	Brewer Environmental Industries, Inc.	B434	10
16.	KNMD-838	09 Feb 01	Final Groundwater Monitoring Report, 02 Jun 99 - 16 Aug 00, SS-01	Brewer Environmental Industries, Inc.	B435 Part 1	9
17.	KNMD-838	09 Feb 01	Final Groundwater Monitoring Report, 02 Jun 99 - 16 Aug 00, SS-01	Brewer Environmental Industries, Inc.	B435 Part 2	9
18.	KNMD	05 Feb 01	Newspaper Article, "Military Briefing, Air Force, Fuel Recovery to be Discussed"	The Honolulu Advertiser	B444	12
19.	KNMD	02 Feb 01	Newspaper Article, "Hickam Community Can Learn About Environment"	The Hickam Kukini	B443	12
20.	KNMD-835	29 Jan 01	RA, Interim, Final Work Plan, SS-01	Roy F. Weston, Inc.	B432	9
21.	KNMD-824	Dec 00	Management Action Plan, Hickam	15 CES/CEVR	B420	9
22.	KNMD-822	28 Nov 00	HDOH Letter to Base Transmitting Signature Page, Technical Document, Decision Declaration, SS-01	Salire, Teresita S Hawaii Department of Health	B418	9
23.	KNMD-816	Nov 00	Final Action Memorandum for Recovery of Floating Fuel Product, SS-01	Brewer Environmental Industries, Inc.	B412	9

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24.	KNMD-815	24 Oct 00	HDOH Letter to Base Concerning Concurrence with Draft Final Action Memorandum for Recovery of Floating Fuel Product, SS-01	Salire, Teresita S Hawaii Department of Health	B411	9
25.	KNMD-802	15 Sep 00	HDOH Letter to Base Concerning Review of Interim RA, Draft Work Plan, SS-01	Salire, Teresita S Hawaii Department of Health	B397	10
26.	ABWM-187	11 Sep 00	SI, Final Critical Process Map, Closure	CH2M Hill, Inc.	A074	9
27.	KNMD-754	22 Jun 00	EE/CA, Final Report for LNAPL Removal, SS-01	Brewer Environmental Industries, Inc.	B344	4
28.	KNMD-229	16 Jun 00	Updated Monitoring Well Management Log, Vol I of II, SS-01	Brewer Environmental Industries, Inc.	B342	5
29.	KNMD-230	16 Jun 00	Updated Monitoring Well Management Log, Vol II of II, SS-01	Brewer Environmental Industries, Inc.	B343	4
30.	KNMD-752	08 Mar 00	RA, Final Interim Work Plan, SS-01	CH2M Hill, Inc.	B339	5
31.	KNMD-747	29 Dec 99	RD, Final Project Plan, Field Work, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01	Brewer Environmental Industries, Inc.	B329	4
32.	KNMD-748	29 Dec 99	RD, Final Work Plan, Field Work, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01	Brewer Environmental Industries, Inc.	B330	4
33.	KNMD-742	10 Dec 99	HDLNR Letter to USACE Concerning National Historic Preservation Act Section 106 Review, Two Additional Pilot Test Sites	Johns, Timothy E Hawaii Department of Land and Natural Resources	B313	5
34.	KNMD-741	30 Nov 99	RAB Meeting Minutes, Hickam, 29 Sep 99	15 CES/CE-2	B312	5
35.	ABWM-237	15 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri-RAB Conference"	Honolulu HS&CPN	A071	9
36.	ABWM-236	14 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri RAB Conference"	The Honolulu Advertiser	A070	9
37.	KNMD-737	15 Oct 99	USACE Letter to HDLNR Concerning Two Additional Pilot Test Sites	Jyo, Ray H U.S. Army Corps of Engineers - Honolulu District	B307	5
38.	KNMD-736	26 Sep 99	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B305	5
39.	KNMD-733	08 Sep 99	HDOH Letter to Base Concerning Review of Draft Work Plan for Subsurface Fuel Plume RD, Monitoring and LTO/LTM of Monitoring and Recovery Wells, SS-01	Salire, Teresita S Hawaii Department of Health	B302	5
40.	KNMD-734	08 Sep 99	HDOH Letter to Base Concerning Review of Draft Project Plan, RD Field Work, SS-01	Salire, Teresita S Hawaii Department of Health	B303	5
41.	ABWM-234	Sep 99	Fact Sheet, Enviro Technology, Air Force Samples Soil, Water and Sediment to Assess Environmental Impacts	15 CES/CEVR	A067	9

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42.	ABWM-235	Sep 99	Fact Sheet, Enviro Technology, Groundwater Sampling Provides Data Critical to Environmental Restoration Decisions	15 CES/CEVR	A068	9
43.	ABWM-233	19 Aug 99	SAF/MIQ Letter to Base Concerning Environmental Data From Intertek Testing Services Environmental Laboratories	McCall, Thomas WL, Jr SAF/MIQ	A066	9
44.	KNMD-731	17 Aug 99	HDOH Letter to Base Concerning Review of Draft MAP, Executive Summary	Salire, Teresita S Hawaii Department of Health	B300	5
45.	KNMD-350	13 Aug 99	Report of Findings, SS-01	CH2M Hill, Inc.	B298	5
46.	KNMD-746	06 Aug 99	RD, Site Specific HSP, Subsurface Plume, Monitoring and LTM and O&M, Recovery Wells, SS-01	Brewer Environmental Industries, Inc.	B323	6
47.	KNMD-724	02 Aug 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Report, SS-01	Salire, Teresita S Hawaii Department of Health	B292	5
48.	ABWM-177	16 Jul 99	Final Critical Process Map, UST Program	IT Corp.	A063	9
49.	KNMD-769	04 Jul 99	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B360	6
50.	ABWM-231	Jul 99	National Caucus, RAB Meeting Minutes, 17 -21 Jul 99	ARC Ecology	A064	9
51.	KNMD-329	30 Jun 99	True Product Measurements, Final Report, SS-01	Brewer Environmental Industries, Inc.	B285	5
52.	KNMD-330	27 May 99	Apparent Product Measurements, Final Report, SS-01	Brewer Environmental Industries, Inc.	B282	5
53.	ABWM-230	14 May 99	HDOH Letter to Base Concerning Comments on Draft Critical Process Map, UST Program	Salire, Teresita S Hawaii Department of Health	A062	9
54.	ABWM-229	26 Apr 99	HQ USEPA Letter to SAF Concerning Reprocessing Data From Laboratories	Wentworth, Nancy W HQ USEPA	A061	9
55.	KNMD-711	02 Mar 99	HDOH Letter to Base Concerning Review of Draft Critical Process Map, FY98 Subsurface Plume RD, LTM/LTO of Monitoring and Recovery Wells	Salire, Teresita S Hawaii Department of Health	B275	5
56.	KNMD-710	01 Mar 99	Base Letter to Residents Concerning Cleanup Subsurface Contamination	Ingenloff, Richard J, Col 15 ABW/CC	B274	5
57.	ABWM-176	Mar 99	Final Management Action Plan, Executive Summary	15 CES/CEVR	A005	2
58.	KNMD-237	28 Jan 99	Apparent Product Measurements, Final Report, SS-01	Brewer Environmental Industries, Inc.	B270	5
59.	KNMD-236	25 Jan 99	Well Maintenance, Final Report, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B269	5
60.	KNMD-235	22 Jan 99	Subsurface Plume Investigation, Final Report, SS-01	Brewer Environmental Industries, Inc.	B268	5

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61.	KNMD-234	20 Jan 99	Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells	Brewer Environmental Industries, Inc.	B267	5
62.	KNMD-709	06 Jan 99	HDLNR Letter to Base Concerning Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells	Wilson, Michael D Hawaii Department of Land and Natural Resources	B263	5
63.	ABWM-228	Jan 99	Tri RAB Meeting Minutes, 09 Jan 99	15 CES/CEVR	A060	9
64.	KNMD-228	13 Nov 98	Flux Chamber Monitoring and Screening Level Risk Evaluation, SS-01	Tetra Tech EM, Inc.	B248	4
65.	ABWM-226	02 Oct 98	HQ AFCEE Letter to HQ AFBCA Concerning Intertek Testing Services Data Issues	Selstrom, John P, Jr, Col HQ AFCEE/ER	A058	9
66.	ABWM-185	Oct 98	Final, Installation-Wide, QAPP, Version 1.0	CH2M Hill, Inc.	A056	9
67.	ABWM-186	Oct 98	Final, Installation-Wide, FSP, Version 2.0	CH2M Hill, Inc.	A057	9
68.	KNMD-695	30 Sep 98	HDOH Letter to Base Concerning Review of Installation Wide FSP and QAPP for Multiple Projects	Hataoka, Bryce Hawaii Department of Health	B226	4
69.	ABWM-225	30 Sep 98	HDOH Letter to Base Concerning No Comments on Installation Wide FSP, QAPP	Hataoka, Bryce Hawaii Department of Health	A055	9
70.	KNMD-326	31 Jul 98	Final Report for Evaluating the Potential for Recovering Light, Nonaqueous-Phase Liquid Using Bioslurping Technology	Battelle	B212	4
71.	KNMD-678	14 Jul 98	HDOH Letter to Base Concerning Review of Draft Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01, SS-13, SS-15	Salire, Teresita S Hawaii Department of Health	B205	4
72.	KNMD-680	14 Jul 98	HDLNR Letter to Base Concerning Draft Amendment for Work Plan, Subsurface Plume Monitoring and LTM and Operation of Monitoring and Recovery Wells, SS-01, SS-13, SS-15	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B207	4
73.	KNMD-670	03 Jun 98	HDOH Letter to Base Concerning Review of Draft Report, Spill Site Management Plan, SS-01	Salire, Teresita S Hawaii Department of Health	B194	4
74.	KNMD-509	19 May 98	RAB Meeting Minutes, Hickam, 17 Nov 97	15 CES/CEVR	B190	4
75.	KNMD-514	09 Mar 98	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B181	4
76.	KNMD-222	Mar 98	Final Comprehensive Historical Review of Underground POL Systems	Wil Chee-Planning, Inc.	B180	5
77.	KNMD-659	Jan 98	Fact Sheet, Air Force Uses Bioslurping to Remove Underground Fuels	The EnviroTechnology	B172	5
78.	ABWM-219	Jan 98	Fact Sheet, Enviro Technology, Innovative Bioslurping Technique Treats Petroleum in Soil at Air Force Sites	15 CES/CEVR	A049	9

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79.	ABWM-220	Jan 98	Fact Sheet, Enviro Technology, Air Force Uses Bioslurping to Remove Underground Fuels	15 CES/CEVR	A050	9
80.	KNMD-507	10 Dec 97	RAB Meeting Minutes, Hickam, 26 Aug 97	15 CES/CEVR	B169	5
81.	KNMD-508	10 Dec 97	RAB Meeting Minutes, Hickam, 22 Oct 97	15 CES/CEVR	B170	5
82.	KNMD-657	17 Nov 97	Environmental Restoration Program, Hickam, RAB Charter	15 CES/CEVR	B167	5
83.	KNMD-513	16 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B166	5
84.	KNMD-512	12 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B165	5
85.	KNMD-216	10 Oct 97	Work Plan, Subsurface Plume Monitoring and LTM and Operations of Monitoring and Recovery Wells	Brewer Environmental Industries, Inc.	B163	5
86.	ABWM-170	Sep 97	Final, Updated Work Plan, Archaeological Survey, Performance Evaluation Samples and Third Party Data Validation	The Environmental Company, Inc.	A047	9
87.	KNMD-511	24 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B157	5
88.	KNMD-510	20 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B156	5
89.	KNMD-652	18 Aug 97	HQ AFCEE Letter to HDOH Concerning Free Product Recovery System, SS-01	Haas, Patrick E HQ AFCEE/ERT	B155	5
90.	KNMD-214	15 Aug 97	Preliminary Geologic and Hydrogeologic Investigation Report	Brewer Environmental Industries, Inc.	B154	5
91.	KNMD-213	Jul 97	Archaeological Monitoring Plan, Monitoring and Sampling During Subsurface Plume Monitoring, SS-01, SS-13, SS-15	SCS/CRMS, Inc.	B142	6
92.	KNMD-211	24 Jun 97	Critical Process Map, Subsurface Plume Monitoring, LTM, O&M, and Recovery Wells, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B141	6
93.	KNMD-178	May 97	Archaeological Survey, Performance Evaluation Samples, Third Party Data Validation, Final Work Plan	The Environmental Company, Inc.	B137	6
94.	ABWM-168	Apr 97	Final Installation-Wide FSP	CH2M Hill, Inc.	A046	9
95.	KNMD-642	21 Mar 97	HDOH Letter to Base Concerning Draft Basewide FSP	Olmsted, Gregory K Hawaii Department of Health	B132	6
96.	KNMD-643	21 Mar 97	HDOH Letter to Base Concerning SI, Draft SAP	Olmsted, Gregory K Hawaii Department of Health	B133	6
97.	KNMD-644	21 Mar 97	HDOH Letter to Base Concerning SI, Draft Work Plan	Olmsted, Gregory K Hawaii Department of Health	B134	6
98.	KNMD-640	12 Mar 97	RAB Meeting Minutes, Hickam, 26 Feb 97	15 CES/CEVR	B130	6
99.	KNMD-641	12 Mar 97	HQ AFCEE Letter to HDOH Concerning Free Product Recovery System, SS-01	Haas, Patrick E HQ AFCEE/ERT	B131	6

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	Code#	Date	Title	Author	AR#	CD#
100	KNMD-639	26 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B129	6
101	KNMD-638	24 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B128	6
102	KNMD-637	19 Feb 97	HDOH Letter to Base Concerning PA/SI, Draft Report, Vol I-II	Olmsted, Gregory K Hawaii Department of Health	B127	6
103	KNMD-636	10 Feb 97	RAB Meeting Minutes, Hickam, 29 Jan 97	15 CES/CEVR	B126	6
104	KNMD-505	09 Dec 96	HDOH Letter to Base Concerning Request to Observe Field Activities at LF-05, SS-01, SS-13, SS-15	Olmsted, Gregory K Hawaii Department of Health	B125	6
105	KNMD-173	Nov 96	Final Management Action Plan, Hickam	CH2M Hill, Inc.	B120	4
106	KNMD-174	Nov 96	PA/SI, Draft Report, Vol I of II, Technical Report, Appendices A-D	EA Engineering, Science, and Technology, Inc.	B121	4
107	KNMD-175	Nov 96	PA/SI, Draft Report, Vol II of II, Technical Report, Appendices E-F	EA Engineering, Science, and Technology, Inc.	B122	6
108	KNMD-176	Nov 96	PA/SI, Draft Report, Appendices G-L, Vol II of II	EA Engineering, Science, and Technology, Inc.	B123	4
109	KNMD-506	28 Oct 96	RAB Meeting Minutes, Hickam, 10 Sep 96	15 CES/CEVR	B119	4
110	KNMD-209	27 Oct 96	Subsurface Plume Monitoring and Well Maintenance, LTO/LTM, Work Plan, SS-01, SS-13, SS-15	Brewer Environmental Industries, Inc.	B116	4
111	KNMD-633	10 Oct 96	Newspaper Article, "Hickam Air Force Base Environmental Cleanup"	The Honolulu Advertiser	B117	4
112	ABWM-217	Oct 96	Fact Sheet, Environmental, Relative Risk	15 CES/CEVR	A045	9
113	KNMD-632	11 Sep 96	HDOH Letter to Base Concerning Subsurface Plume Monitoring and Well Maintenance, LTO/LTM, SS-01, SS-13, SS-15	Olmsted, Gregory K Hawaii Department of Health	B114	4
114	ABWM-184	30 Aug 96	Results of Multi-Site Field Treatability Test, Bioslurping	Battelle	A044	9
115	KNMD-631	26 Aug 96	HDOH Letter to Base Concerning Preliminary Geologic and Hydrogeologic Investigation Report, SS-01	Olmsted, Gregory K Hawaii Department of Health	B113	4
116	ABWM-216	02 Jun 96	Newspaper Article, "Air Force Assesses Contamination Risks, Study Would Help in Cleanup Plans"	The Honolulu Advertiser	A043	9
117	ABWM-212	30 Oct 95	EPA Letter to Base Concerning Meeting to Discuss Oahu Plantation Superfund Site	Opalski, Pam Cooper, David EPA Region IX	A038	9
118	KNMD-205	20 Sep 95	Installation of Monitoring Wells, Soil Lithology Work Plan	Brewer Environmental Industries, Inc.	B094	6
119	ABWM-208	07 Sep 95	HDLNR Letter to Base Concerning Comments on PA/SI, RI/FS	Wilson, Michael D Hawaii Department of Land and Natural Resources	A034	9

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120	KNMD-619	12 Jul 95	Base Letter to Distribution Concerning Comment Resolution for Risk Screening Evaluations	Strom, Randie A, LtCol 15 CES/CEV	B092	3
121	KNMD-762	Jul 95	SOW, Community Relations Program	HQ AFCEE	B352	6
122	ABWM-001	Jul 95	Community Relations Plan	EA Engineering, Science, and Technology, Inc.	A004	2
123	ABWM-153	Jul 95	PA/SI, Final Work Plan	EA Engineering, Science, and Technology, Inc.	A032	9
124	KNMD-616	16 Jun 95	HDOH Letter to Base Concerning Review of Risk Screening Evaluations	Olmsted, Gregory K Hawaii Department of Health	B088	3
125	KNMD-617	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B089	3
126	ABWM-207	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations Subset for RAB Review	Schutz, Michelle EPA Region IX	A031	9
127	ABWM-120	Jun 95	PA/SI, RI/FS, Final SAP	EA Engineering, Science, and Technology, Inc.	A023	9
128	ABWM-121	Jun 95	PA/SI, Final Waste Management Plan	15 CES/CEVR	A028	9
129	ABWM-163	05 May 95	Final Aerial Photograph Review Summary Report	Montgomery Watson	A020	9
130	KNMD-615	01 May 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B087	3
131	ABWM-116	May 95	Final Risk Screening Evaluations Report, Vol I of IV	EA Engineering, Science, and Technology, Inc.	A024	9
132	ABWM-117	May 95	Final Risk Screening Evaluations Report, Vol II of IV	EA Engineering, Science, and Technology, Inc.	A025	9
133	ABWM-118	May 95	Final Risk Screening Evaluations Report, Vol III of IV	EA Engineering, Science, and Technology, Inc.	A026	9
134	ABWM-119	May 95	Final Risk Screening Evaluations Report, Vol IV of IV	EA Engineering, Science, and Technology, Inc.	A027	9
135	ABWM-114	May 95	Final Risk Screening Evaluations Report, Subset for Review by RAB	EA Engineering, Science, and Technology, Inc.	A021	9
136	ABWM-115	May 95	Final Ranking of Sites by Potential for Risk	15 CES/CEVR	A022	9
137	KNMD-614	30 Mar 95	USFWS Letter to Base Concerning Comments on Draft Risk Screening Evaluations	Harper, Brooks US Fish and Wildlife Service	B086	3
138	KNMD-612	09 Mar 95	HDOH Letter to Base Concerning Bioslurper Vapor Extraction and Treatment System	Nagamine, Wilfred K Hawaii Department of Health	B084	3
139	ABWM-204	02 Mar 95	NOAA Letter to Base Concerning Comments on SAP and Work Plan	Naughton, John J National Oceanic and Atmospheric Administration	A019	9
140	KNMD-128	27 Jan 95	Subsurface Soil Investigation Report, AAFES, Burger King	Cotton and Frazier Consultants, Inc.	B082	3

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	Code#	Date	Title	Author	AR#	CD#
141	KNMD-336	24 Jan 95	Final Site Specific Test Plan for Bioslurper Testing, SS-01	Battelle	B081	3
142	KNMD-248	Dec 94	Hazardous and Non-Hazardous Materials Waste Plan	Environmental Sciences - Pacific, Inc.	B079	3
143	ABWM-096	Dec 94	Final Management Action Plan, Executive Summary	EA Engineering, Science, and Technology, Inc.	A003	2
144	KNMD-092	24 Oct 94	SI Report, Four Seasons, Burger King	Cotton and Frazier Consultants, Inc.	B078	3
145	ABWM-203	21 Oct 94	USFWS Letter to Base Concerning Endangered and Threatened Species, Federally Listed, Proposed and Candidate	Harper, Brooks US Fish and Wildlife Service	A018	9
146	ABWM-182	Oct 94	PA/SI, RI/FS, Final HSP	EA Engineering, Science, and Technology, Inc.	A017	9
147	KNMD-339	29 Sep 94	Site Specific HSP, Four Seasons, Burger King	Cotton and Frazier Consultants, Inc.	B077	3
148	KNMD-337	Sep 94	Final HSP, Four Seasons, Toyland	Ernest K Hirata & Associates, Inc.	B075	6
149	KNMD-338	Sep 94	Site Characterization Work Plan, Gas Probe Sampling, Four Seasons, Toyland	Ernest K Hirata & Associates, Inc.	B076	3
150	ABWM-113	Sep 94	PA/SI, Draft Work Plan	EA Engineering, Science, and Technology, Inc.	A016	9
151	ABWM-064	Jul 94	Draft Site Characterization Report, Risk Screening	Engineering Sciences, Inc.	A013	9
152	ABWM-103	Jul 94	Draft SAP	EA Engineering, Science, and Technology, Inc.	A014	9
153	ABWM-104	Jul 94	Draft QAPP	EA Engineering, Science, and Technology, Inc.	A015	9
154	KNMD-774	02 Dec 93	In Situ Bioventing, Preliminary Results of Three Pilot Tests	Environmental Science and Engineering, Inc. 15 CES/CEV	B364	9
155	ABWM-085	Dec 93	Final Management Action Plan, Executive Summary	Engineering-Sciences, Inc.	A002	2
156	ABWM-201	Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	A006	2
157	KNMD-045	Aug 93	Bioventing Pilot Test Work Plan, Draft Interim Pilot Test Results Report, SS-01, LF-14, SS-15	Engineering-Sciences, Inc.	B062	3
158	KNMD-609	02 Dec 92	HDOH Letter to Base Concerning Soil Bioremediation Study	Aki, Paul F Hawaii Department of Health	B051	2
159	KNMD-024	26 Sep 91	PA/SI, Review Report	University of Hawaii Environmental Center	B040	2
160	KNMD-200	Jul 91	Pre-Construction Survey of Family Housing Project, Final Report	Kennedy/Jenks/Chilton	B028	2
161	KNMD-013	Apr 91	SI, Characterization, UST Work Plan Addendum	Chem-Nuclear Geotech, Inc.	B027	2
162	KNMD-008	16 Mar 89	SI, Characterization, UST Work Plan	Chem-Nuclear Geotech, Inc.	B023	2
163	KNMD-081	Oct 88	Subsurface Fuel Recovery, Monthly Update Report, Sep 88	Groundwater Technology, Inc.	B021	2

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164	KNMD-079	Oct 88	Subsurface Fuel Recovery, Final Report, Project No 87-9111	Groundwater Technology, Inc.	B022	2
165	KNMD-078	Sep 88	Subsurface Fuel Recovery, Monthly Update Report, Aug 88	Groundwater Technology, Inc.	B020	2
166	KNMD-077	May 88	Subsurface Fuel Recovery, Monthly Update Report, May 88	Groundwater Technology, Inc.	B019	2
167	KNMD-074	15 Apr 88	Subsurface Fuel Recovery, Monthly Update Report, Mar 88	Groundwater Technology, Inc.	B016	2
168	KNMD-076	07 Apr 88	Phase II, Additional Subsurface Fuel Recovery System Construction Report	Groundwater Technology, Inc.	B018	2
169	KNMD-075	18 Mar 88	Subsurface Fuel Recovery, Monthly Update Report, Feb 88	Groundwater Technology, Inc.	B017	2
170	KNMD-073	23 Feb 88	Subsurface Fuel Recovery, Monthly Update Report, Jan 88	Groundwater Technology, Inc.	B015	2
171	KNMD-072	15 Jan 88	Subsurface Fuel Recovery, Monthly Update Report, Dec 87	Groundwater Technology, Inc.	B014	2
172	KNMD-071	18 Dec 87	Subsurface Fuel Recovery, Monthly Update Report, Nov 87	Groundwater Technology, Inc.	B011	2
173	KNMD-070	16 Nov 87	Subsurface Fuel Recovery, Monthly Update Report, Oct 87	Groundwater Technology, Inc.	B010	2
174	KNMD-069	11 Nov 87	Subsurface Fuel Recovery, Maintenance Plan	Groundwater Technology, Inc.	B009	2
175	KNMD-068	27 Sep 87	Subsurface Fuel Recovery, Quality Control Procedures Report	Groundwater Technology, Inc.	B008	2
176	KNMD-067	12 Sep 86	Subsurface Fuel Recovery, Quarterly Update Report, May-Jul 86	Groundwater Technology, Inc.	B006	2
177	KNMD-080	07 Aug 86	Subsurface Fuel Recovery, Quarterly Update Report, Feb-Apr 86	Groundwater Technology, Inc.	B005	2
178	KNMD-196	Nov 85	SI, Final Report	Groundwater Technology, Inc.	B004	2
179	KNMD-082	Jun 84	Evaluation of Subsurface Conditions and Hydrocarbon Recovery Program Technical Proposal	Groundwater Technology, Inc.	B003	2
180	KNMD-001	Jul 83	Phase I, Records Search Report	Sam O Hirota, Inc.	B002	2
181	KNMD-066	Apr 83	Subsurface Fuel Detection Investigation Report	Ernest K Hirata & Associates, Inc.	B001	2

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1.	ABWM-000	07 Sep 01	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	A001	1
2.	KNMD	04 Sep 01	Base Letter to Distribution Concerning Amendment to Final Action Memorandum, LF-14	Nii, Michael 15 CES/CEV	B476	12
3.	KNMD	11 Jul 01	Newspaper Article, "Meetings, RAB Meeting Announcement"	The Honolulu Midweek	B474	12
4.	KNMD	10 Jul 01	Removal Action, Interim, Final Institutional Controls, Initial Sampling Report, OT-02	15 CES/CEVR	B472	12
5.	KNMD	10 Jul 01	Removal Action, Interim, Final Institutional Controls, Initial Sampling Report, LF-14	15 CES/CEVR	B473	12
6.	KNMD	29 Jun 01	Removal Action, Final Project Work Plans, UST Verification	Groundwater Technology, Inc.	B468	12
7.	KNMD	24 May 01	RAB Meeting Minutes, Hickam, 12 Apr 01	Tayon, James E 15 CES/CEV	B465	12
8.	KNMD	18 May 01	Newspaper Article, "Fueling Innovation"	The Hickam Kukini	B461	12
9.	ABWM-200	May 01	Community Relations Plan	15 CES/CEVR	A033	9
10.	KNMD	16 Mar 01	RAB Meeting Minutes, Hickam, 08 Feb 01	Tayon, James E 15 CES/CEV	B448	12
11.	KNMD	07 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Midweek	B446	12
12.	KNMD	04 Mar 01	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B447	12
13.	KNMD	16 Feb 01	Newspaper Article, "Bioslurper"	The Hickam Kukini	B445	12
14.	KNMD	05 Feb 01	Newspaper Article, "Military Briefing, Air Force, Fuel Recovery to be Discussed"	The Honolulu Advertiser	B444	12
15.	KNMD	02 Feb 01	Newspaper Article, "Hickam Community Can Learn About Environment"	The Hickam Kukini	B443	12
16.	KNMD-830	12 Jan 01	USFWS Letter to Base Concerning Interim Removal Actions, Runway 8I Sites, and Pipeline Abandonment Activities	Henson, Paul US Fish and Wildlife Service	B427	9
17.	KNMD-831	12 Jan 01	USFWS Letter to Base Concerning No Effect to Endangered and Threatened Species, Limited SI, EA-56, EA-57, EA-58, SD-37	Henson, Paul US Fish and Wildlife Service	B428	9
18.	KNMD-824	Dec 00	Management Action Plan, Hickam	15 CES/CEVR	B420	9
19.	KNMD-820	15 Nov 00	HDLNR Letter to Base Concerning Site Inspections	Johns, Timothy E Hawaii Department of Land and Natural Resources	B416	9
20.	ABWM-242	15 Nov 00	HDLNR Letter to Base Concerning Comments on National Historic Preservation Act, SI	Johns, Timothy E Hawaii Department of Land and Natural Resources	A077	9

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21.	ABWM-188	10 Nov 00	SI, Final Work Plan, Closure	CH2M Hill, Inc.	A076	9
22.	KNMD-818	03 Nov 00	HDLNR Letter to Base Concerning Review of Addendum to Third Party Oversight for Archaeological Monitoring Report, POL System Component Removal Project	Johns, Timothy E Hawaii Department of Land and Natural Resources	B414	9
23.	KNMD-819	03 Nov 00	HDLNR Letter to Base Concerning Review of Third Party Oversight for Archaeological Monitoring Report, Runway 8L EE/CA, SS-22, EE/CA, Phase I, UST Removal Project	Johns, Timothy E Hawaii Department of Land and Natural Resources	B415	9
24.	KNMD-813	23 Oct 00	Interim Removal Actions, Work Plan, Runway 8L Sites	CH2M Hill, Inc.	B409	9
25.	KNMD-814	23 Oct 00	Base Letter to USFWS Concerning Informal Section 7 Consultation, Limited SI	Tayon, James E 15 CES/CEV	B410	9
26.	KNMD-811	12 Oct 00	USFWS Letter to Base Concerning Informal Section 7 Consultation, EE/CA, LF-05	Henson, Paul US Fish and Wildlife Service	B406	9
27.	KNMD-806	04 Oct 00	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, Interim Removal Action, Runway 8L	Johns, Timothy E Hawaii Department of Land and Natural Resources	B401	9
28.	KNMD-808	04 Oct 00	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, EE/CA, LF-05	Johns, Timothy E Hawaii Department of Land and Natural Resources	B403	9
29.	KNMD-805	29 Sep 00	EE/CA, Final Work Plan Addendum, LF-05, SD-02	CH2M Hill, Inc.	B400	9
30.	ABWM-241	26 Sep 00	HDOH Letter to Base Concerning Comments on SI, Draft Work Plan	Salire, Teresita S Hawaii Department of Health	A075	9
31.	KNMD-801	15 Sep 00	Base Letter to USFWS Concerning Informal Section 7 Consultation, EE/CA, LF-05	Tayon, James E 15 CES/CE-2	B396	10
32.	KNMD-803	15 Sep 00	HDOH Letter to Base Concerning Review of EE/CA, Draft Work Plan Addendum, LF-05	Salire, Teresita S Hawaii Department of Health	B398	10
33.	ABWM-187	11 Sep 00	SI, Final Critical Process Map, Closure	CH2M Hill, Inc.	A074	9
34.	KNMD-755	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B345	6
35.	KNMD-758	Jul 00	SI, EE/CA, Phase I, UST Removal, Third Party Oversight for Archaeological Monitoring, Runway 8L, SS-22	The Environmental Company, Inc.	B348	6
36.	KNMD-759	Jul 00	Third Party Oversight for Data Validation and Performance Evaluation Report, Runway 8L	The Environmental Company, Inc.	B349	6
37.	KNMD-362	30 Dec 99	Final Action Memorandum, OT-02	CH2M Hill, Inc.	B318	5

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38.	KNMD-361	30 Dec 99	Final Action Memorandum, LF-14	CH2M Hill, Inc.	B321	5
39.	KNMD-357	30 Dec 99	NFRAP, Final Decision Document, LF-16	CH2M Hill, Inc.	B331	5
40.	KNMD-356	30 Dec 99	NFRAP, Final Decision Document, LF-15	CH2M Hill, Inc.	B332	5
41.	KNMD-358	30 Dec 99	NFRAP, Final Decision Document, SD-36	CH2M Hill, Inc.	B334	5
42.	KNMD-360	30 Dec 99	NFRAP, Final Decision Document, SS-22	CH2M Hill, Inc.	B335	5
43.	KNMD-745	27 Dec 99	Base Letter to HDOH Concerning NFRAP Final Decision Document, FT-07	Redmann, Steven J, BrigGen 15 ABW/CC	B316	5
44.	KNMD-741	30 Nov 99	RAB Meeting Minutes, Hickam, 29 Sep 99	15 CES/CE-2	B312	5
45.	KNMD-740	24 Nov 99	HDOH Letter to Base Concerning Review of NFRAP Draft Final Decision Document, FT-07	Salire, Teresita S Hawaii Department of Health	B311	5
46.	KNMD-353	19 Nov 99	EE/CA, Sites Along Runway 8L, Final Report, LF-14	CH2M Hill, Inc.	B325	6
47.	KNMD-355	19 Nov 99	EE/CA, Sites Along Runway 8L, Final Report, OT-02	CH2M Hill, Inc.	B326	4
48.	ABWM-237	15 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri-RAB Conference"	Honolulu HS&CPN	A071	9
49.	ABWM-236	14 Nov 99	Newspaper Article, "Public Invited to Attend Hickam's Tri RAB Conference"	The Honolulu Advertiser	A070	9
50.	KNMD-365	Nov 99	NFRAP, Final Decision Document, FT-07	The Environmental Company, Inc.	B317	5
51.	KNMD-351	29 Oct 99	SI Final Report, Executive Summary	EA Engineering, Science, and Technology, Inc.	B308	5
52.	KNMD-736	26 Sep 99	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B305	5
53.	KNMD-735	21 Sep 99	Base Letter to HDOH Concerning Responses to Comments on EE/CA and NFRAP Planned Documents	Aoyama, Marc M 15 CES/CE-2	B304	5
54.	ABWM-234	Sep 99	Fact Sheet, Enviro Technology, Air Force Samples Soil, Water and Sediment to Assess Environmental Impacts	15 CES/CEVR	A067	9
55.	ABWM-235	Sep 99	Fact Sheet, Enviro Technology, Groundwater Sampling Provides Data Critical to Environmental Restoration Decisions	15 CES/CEVR	A068	9
56.	KNMD-732	30 Aug 99	HDOH Letter to Base Concerning Review of NFRAP Draft Final Decision Document, LF-15, LF-16, SS-22	Salire, Teresita S Hawaii Department of Health	B301	5
57.	ABWM-233	19 Aug 99	SAF/MIQ Letter to Base Concerning Environmental Data From Intertek Testing Services Environmental Laboratories	McCall, Thomas WL, Jr SAF/MIQ	A066	9
58.	KNMD-731	17 Aug 99	HDOH Letter to Base Concerning Review of Draft MAP, Executive Summary	Salire, Teresita S Hawaii Department of Health	B300	5

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	Code#	Date	Title	Author	AR#	CD#
59.	KNMD-729	09 Aug 99	HDOH Letter to Base Concerning Review of NFRAP Draft Final Decision Document, SD-36	Salire, Teresita S Hawaii Department of Health	B297	5
60.	KNMD-728	06 Aug 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Final Report, LF-14	Salire, Teresita S Hawaii Department of Health	B296	5
61.	KNMD-725	03 Aug 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Final Report, OT-02	Salire, Teresita S Hawaii Department of Health	B293	5
62.	KNMD-726	03 Aug 99	USGS Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Klein, John M US Geological Survey	B294	5
63.	KNMD-721	22 Jul 99	HDOT Letter to Base Concerning Draft Final EE/CA and NFRAP Planned Documents	Schlapak, Benjamin R Hawaii Department of Transportation	B289	5
64.	ABWM-177	16 Jul 99	Final Critical Process Map, UST Program	IT Corp.	A063	9
65.	KNMD-769	04 Jul 99	Newspaper Article, "Hickam Environmental Restoration Program Officials Announce Public Comment Period"	The Honolulu Advertiser	B360	6
66.	ABWM-231	Jul 99	National Caucus, RAB Meeting Minutes, 17 -21 Jul 99	ARC Ecology	A064	9
67.	KNMD-718	03 Jun 99	HDOH Letter to Base Concerning Review of Draft Site Characterization Summary, ITIR, LTM Study, LF-01, LF-05, FT-07	Salire, Teresita S Hawaii Department of Health	B284	5
68.	KNMD-714	19 May 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Report, LF-14	Salire, Teresita S Hawaii Department of Health	B278	5
69.	KNMD-713	17 May 99	HDOH Letter to Base Concerning Review of EE/CA, Draft Report, OT-02	Salire, Teresita S Hawaii Department of Health	B277	5
70.	ABWM-230	14 May 99	HDOH Letter to Base Concerning Comments on Draft Critical Process Map, UST Program	Salire, Teresita S Hawaii Department of Health	A062	9
71.	ABWM-229	26 Apr 99	HQ USEPA Letter to SAF Concerning Reprocessing Data From Laboratories	Wentworth, Nancy W HQ USEPA	A061	9
72.	KNMD-710	01 Mar 99	Base Letter to Residents Concerning Cleanup Subsurface Contamination	Ingenloff, Richard J, Col 15 ABW/CC	B274	5
73.	ABWM-176	Mar 99	Final Management Action Plan, Executive Summary	15 CES/CEVR	A005	2
74.	KNMD-190	15 Jan 99	EE/CA, Sites Along Runway 8L, ITIR	CH2M Hill, Inc.	B264	5
75.	KNMD-708	06 Jan 99	HDLNR Letter to Base Concerning Review of SI Draft Report	Wilson, Michael D Hawaii Department of Land and Natural Resources	B262	5
76.	KNMD-191	Jan 99	Site Characterization Summary, ITIR, LTM Study, LF-01, LF-05, FT-07	The Environmental Company, Inc.	B261	5
77.	ABWM-228	Jan 99	Tri RAB Meeting Minutes, 09 Jan 99	15 CES/CEVR	A060	9

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78.	KNMD-707	28 Dec 98	HDOH Letter to Base Concerning Review of SI Draft Report	Salire, Teresita S Hawaii Department of Health	B260	5
79.	KNMD-189	23 Dec 98	EE/CA, Sites Along Runway 8L, ITIR, OT-02	CH2M Hill, Inc.	B259	4
80.	KNMD-704	07 Dec 98	Base Letter to HDOH Concerning Responses to Reviewer Comments, Sites Landfill Areas, SS-11, OT-02, SS-23, SD-36A	Torchia, Linden J, LtCol 15 CES/CE-2	B254	6
81.	KNMD-603	04 Dec 98	EE/CA, Work Plan, LF-05	CH2M Hill, Inc.	B249	4
82.	KNMD-699	27 Oct 98	USGS Letter to Base Concerning Review of Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Meyer, William US Geological Survey	B236	4
83.	KNMD-698	23 Oct 98	HDOH Letter to Base Concerning Review of Draft Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Salire, Teresita S Hawaii Department of Health	B235	4
84.	ABWM-226	02 Oct 98	HQ AFCEE Letter to HQ AFBCA Concerning Intertek Testing Services Data Issues	Selstrom, John P, Jr, Col HQ AFCEE/ER	A058	9
85.	ABWM-185	Oct 98	Final, Installation-Wide, QAPP, Version 1.0	CH2M Hill, Inc.	A056	9
86.	ABWM-186	Oct 98	Final, Installation-Wide, FSP, Version 2.0	CH2M Hill, Inc.	A057	9
87.	KNMD-694	30 Sep 98	HDOH Letter to Base Concerning Technical Memorandum, Estimated Background Concentrations of Metals in Soil and Groundwater	Schlapak, Benjamin R Hawaii Department of Transportation	B225	4
88.	KNMD-695	30 Sep 98	HDOH Letter to Base Concerning Review of Installation Wide FSP and QAPP for Multiple Projects	Hataoka, Bryce Hawaii Department of Health	B226	4
89.	ABWM-225	30 Sep 98	HDOH Letter to Base Concerning No Comments on Installation Wide FSP, QAPP	Hataoka, Bryce Hawaii Department of Health	A055	9
90.	KNMD-780	14 Sep 98	HDOH Letter to Base Concerning EE/CA, Draft Work Plan, LF-05	Salire, Teresita S Hawaii Department of Health	B371	9
91.	KNMD-691	11 Sep 98	TRC Meeting Minutes, 19 Mar 98	15 CES/CEVR	B222	4
92.	KNMD-779	10 Sep 98	HDLNR Letter to Base Concerning EE/CA, Draft Work Plan, LF-05	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B370	9
93.	KNMD-688	26 Aug 98	HDOH Letter to Base Concerning Review of ITIR, SD-36A	Salire, Teresita S Hawaii Department of Health	B217	4
94.	KNMD-686	17 Aug 98	HDOH Letter to Base Concerning Review of Revised Draft ITIR, EA-11	Salire, Teresita S Hawaii Department of Health	B215	4

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95.	KNMD-684	07 Aug 98	HDOT Letter to Base Concerning Review of EE/CA, ITIR, SD-02, SD-03, SD-36	Schlapak, Benjamin R Hawaii Department of Transportation	B213	4
96.	KNMD-681	21 Jul 98	HDLNR Letter to Base Concerning Request for Comments on Revised Draft ITIR, EA-11	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B208	4
97.	KNMD-186	08 Jul 98	EE/CA, Sites Along Runway 8L, ITIR, SD-36A	CH2M Hill, Inc.	B204	4
98.	KNMD-674	18 Jun 98	HDOH Letter to Base Concerning Review of Draft ITIR, Addenda 3, Site Specific FSP, Runway 8L, EE/CA	Salire, Teresita S Hawaii Department of Health	B198	4
99.	KNMD-181	Jun 98	Final Multi-Drum Project Environmental Report	EA Engineering, Science, and Technology, Inc.	B191	4
100	KNMD-182	Jun 98	SI, Final Multi-Drum Project Report	EA Engineering, Science, and Technology, Inc.	B192	4
101	KNMD-183	Jun 98	Final Multi-Drum Project Letter Report	EA Engineering, Science, and Technology, Inc.	B193	4
102	KNMD-509	19 May 98	RAB Meeting Minutes, Hickam, 17 Nov 97	15 CES/CEVR	B190	4
103	KNMD-335	05 May 98	EE/CA, Technical Memorandum for Continuous Water Level Monitoring at Five Runway 8L Sites	CH2M Hill, Inc.	B188	4
104	KNMD-514	09 Mar 98	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B181	4
105	KNMD-222	Mar 98	Final Comprehensive Historical Review of Underground POL Systems	Wil Chee-Planning, Inc.	B180	5
106	KNMD-778	26 Feb 98	Installation Action Plan, Fort Kamehameha	15 CES/CEVR	B368	9
107	KNMD-664	18 Feb 98	HDOT Letter to Base Concerning Environmental Restoration Adjacent to Honolulu International Airport	Kurosawa, Ernest T Hawaii Department of Transportation	B178	5
108	KNMD-663	Feb 98	Fact Sheet, Environmental, Tri-Services Landfill	15 CES/CEVR	B177	5
109	KNMD-777	21 Jan 98	Screening Survey, Final Report, LF-05	W.L. Gore & Associates, Inc.	B367	9
110	KNMD-661	08 Jan 98	Base Letter to HDOT Concerning ITIR, LF-14, LF-15, LF-16, SS-22	Aoyama, Marc M 15 CES/CE-2	B174	5
111	ABWM-219	Jan 98	Fact Sheet, Enviro Technology, Innovative Bioslurping Technique Treats Petroleum in Soil at Air Force Sites	15 CES/CEVR	A049	9
112	ABWM-220	Jan 98	Fact Sheet, Enviro Technology, Air Force Uses Bioslurping to Remove Underground Fuels	15 CES/CEVR	A050	9
113	KNMD-658	11 Dec 97	HDLNR Letter to Base Concerning EE/CA, Draft ITIR, OT-02	Wilson, Michael D Hawaii Department of Land and Natural Resources	B171	5
114	KNMD-507	10 Dec 97	RAB Meeting Minutes, Hickam, 26 Aug 97	15 CES/CEVR	B169	5

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115	KNMD-508	10 Dec 97	RAB Meeting Minutes, Hickam, 22 Oct 97	15 CES/CEVR	B170	5
116	KNMD-657	17 Nov 97	Environmental Restoration Program, Hickam, RAB Charter	15 CES/CEVR	B167	5
117	KNMD-513	16 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B166	5
118	KNMD-512	12 Nov 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser The Honolulu Star-Bulletin	B165	5
119	KNMD-776	05 Nov 97	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106 Review, Fort Kamehameha AOCs, LF-05	Hibbard, Don Hawaii Department of Land and Natural Resources	B366	9
120	KNMD-656	22 Oct 97	HDLNR Letter to Base Concerning SI, Work Plan	Uchida, Dean Y Hawaii Department of Land and Natural Resources	B164	5
121	KNMD-775	03 Oct 97	Base Letter to HDLNR Concerning Section 106 Review, SI	Aoyama, Marc M 15 CES/CE-2	B365	9
122	KNMD-179	Sep 97	SI, Work Plan	CH2M Hill, Inc.	B159	5
123	ABWM-170	Sep 97	Final, Updated Work Plan, Archaeological Survey, Performance Evaluation Samples and Third Party Data Validation	The Environmental Company, Inc.	A047	9
124	KNMD-653	26 Aug 97	HDOT Letter to Base Concerning SI, Work Plan	Peru, Robert JF Hawaii Department of Transportation	B158	5
125	KNMD-511	24 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B157	5
126	KNMD-510	20 Aug 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B156	5
127	KNMD-651	15 Aug 97	Base Letter to HDLNR Concerning Section 106 Review, SI, Draft Final Work Plan	Okazaki, Robert M 15 CES/CE-2	B153	5
128	KNMD-650	14 Aug 97	HDOT Letter to Base Concerning SI, Draft Final Work Plan	Kurosawa, Ernest T Hawaii Department of Transportation	B152	5
129	KNMD-647	15 Jul 97	Base Letter to Distribution Concerning EE/CA, Final Work Plan, Sites Along Runway 8L	Okazaki, Robert M 15 CES/CE-2	B144	6
130	KNMD-502	19 May 97	HDLNR Letter to Base Concerning National Historic Preservation Act Section 106, EE/CA, Runway 8L	Wilson, Michael D Hawaii Department of Land and Natural Resources	B140	6
131	KNMD-646	14 May 97	USFWS Letter to Base Concerning Informal Section 7 Consultations for Environmental Investigations	Harper, Brooks US Fish and Wildlife Service	B139	6
132	KNMD-501	08 May 97	TRC Meeting Minutes, 02 Apr 97	15 CES/CEVR	B138	6
133	KNMD-177	May 97	EE/CA, Final Work Plan, Sites Along Runway 8L	CH2M Hill, Inc.	B136	6

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134	KNMD-178	May 97	Archaeological Survey, Performance Evaluation Samples, Third Party Data Validation, Final Work Plan	The Environmental Company, Inc.	B137	6
135	ABWM-168	Apr 97	Final Installation-Wide FSP	CH2M Hill, Inc.	A046	9
136	KNMD-645	24 Mar 97	HDOH Letter to Base Concerning EE/CA, Draft Final Work Plan, Sites Along Runway 8L	Olmsted, Gregory K Hawaii Department of Health	B135	6
137	KNMD-642	21 Mar 97	HDOH Letter to Base Concerning Draft Basewide FSP	Olmsted, Gregory K Hawaii Department of Health	B132	6
138	KNMD-643	21 Mar 97	HDOH Letter to Base Concerning SI, Draft SAP	Olmsted, Gregory K Hawaii Department of Health	B133	6
139	KNMD-644	21 Mar 97	HDOH Letter to Base Concerning SI, Draft Work Plan	Olmsted, Gregory K Hawaii Department of Health	B134	6
140	KNMD-640	12 Mar 97	RAB Meeting Minutes, Hickam, 26 Feb 97	15 CES/CEVR	B130	6
141	KNMD-639	26 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B129	6
142	KNMD-638	24 Feb 97	Newspaper Article, "Hickam Air Force Base RAB Meeting"	The Honolulu Advertiser	B128	6
143	KNMD-637	19 Feb 97	HDOH Letter to Base Concerning PA/SI, Draft Report, Vol I-II	Olmsted, Gregory K Hawaii Department of Health	B127	6
144	KNMD-636	10 Feb 97	RAB Meeting Minutes, Hickam, 29 Jan 97	15 CES/CEVR	B126	6
145	KNMD-505	09 Dec 96	HDOH Letter to Base Concerning Request to Observe Field Activities at LF-05, SS-01, SS-13, SS-15	Olmsted, Gregory K Hawaii Department of Health	B125	6
146	KNMD-173	Nov 96	Final Management Action Plan, Hickam	CH2M Hill, Inc.	B120	4
147	KNMD-174	Nov 96	PA/SI, Draft Report, Vol I of II, Technical Report, Appendices A-D	EA Engineering, Science, and Technology, Inc.	B121	4
148	KNMD-175	Nov 96	PA/SI, Draft Report, Vol II of II, Technical Report, Appendices E-F	EA Engineering, Science, and Technology, Inc.	B122	6
149	KNMD-176	Nov 96	PA/SI, Draft Report, Appendices G-L, Vol II of II	EA Engineering, Science, and Technology, Inc.	B123	4
150	KNMD-506	28 Oct 96	RAB Meeting Minutes, Hickam, 10 Sep 96	15 CES/CEVR	B119	4
151	KNMD-633	10 Oct 96	Newspaper Article, "Hickam Air Force Base Environmental Cleanup"	The Honolulu Advertiser	B117	4
152	KNMD-634	07 Oct 96	HDOH Letter to Base Concerning Draft Quality Program Plans, LTM, HSP, SAP Addendum, Work Plan Addendum, LF-01, LF-05, FT-07	Olmsted, Gregory K Hawaii Department of Health	B118	4
153	KNMD-171	Oct 96	Final Quality Program Plans, LTM, HSP, SAP Addendum, Work Plan Addendum, LF-01, LF-05, FT-07	The Environmental Company, Inc.	B115	4

KNMD OU5						
	Code#	Date	Title	Author	AR#	CD#
154	ABWM-217	Oct 96	Fact Sheet, Environmental, Relative Risk	15 CES/CEVR	A045	9
155	ABWM-184	30 Aug 96	Results of Multi-Site Field Treatability Test, Bioslurping	Battelle	A044	9
156	ABWM-216	02 Jun 96	Newspaper Article, "Air Force Assesses Contamination Risks, Study Would Help in Cleanup Plans"	The Honolulu Advertiser	A043	9
157	KNMD-630	14 Mar 96	USFWS Letter to Base Concerning Comments on Draft Revisions to Conclusions of Phase II, Stage 3, RI, Final Report, LF-01, LF-05, FT-07	Harper, Brooks US Fish and Wildlife Service	B111	4
158	KNMD-164	Mar 96	SI, Drum Removal Final Work Plan, LF-17, SD-36, SD-37	EA Engineering, Science, and Technology, Inc.	B105	6
159	KNMD-165	Mar 96	Phase II, Stage 3, RI Final Report, Vol I of VIII, Executive Summary, Sections 1, 2, 3, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B106	4
160	KNMD-166	Mar 96	Phase II, Stage 3, RI Final Report, Vol II of VIII, Sections 4, 5, 6, References, Appendix A, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B107	4
161	KNMD-167	Mar 96	Phase II, Stage 3, RI Final Report, Vol III-VI of VIII, Appendices B, C, D, E, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B108	4
162	KNMD-168	Mar 96	Phase II, Stage 3, RI Final Report, Vol VII-VIII of VIII, Appendices F, G, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B109	6
163	KNMD-665	21 Feb 96	Phase II, Stage 3, RI Meeting Minutes, 06 Dec 95	15 CES/CEVR	B179	5
164	KNMD-161	Feb 96	Final Environmental Baseline Survey, Runway 8L-26R	HQ AFCEE	B103	6
165	KNMD-162	Feb 96	PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	EA Engineering, Science, and Technology, Inc.	B104	6
166	ABWM-214	02 Jan 96	HDLNR Letter to Base Concerning Review of Revisions to Drum Removal Project	Hibbard, Don Hawaii Department of Land and Natural Resources	A041	9
167	KNMD-628	05 Dec 95	HDLNR Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Wilson, Michael D Hawaii Department of Land and Natural Resources	B102	6
168	KNMD-626	30 Nov 95	USFWS Letter to Base Concerning Limited Field Investigation	Harper, Brooks US Fish and Wildlife Service	B100	6
169	KNMD-627	30 Nov 95	Base Letter to HDOH, University of Hawaii, EPA Concerning PA/SI, Draft FSP for Limited Field Investigation, Grouping 1	Strom, Randie A, LtCol 15 CES/CEVR	B101	6
170	KNMD-625	27 Nov 95	HDLNR Letter to Base Concerning Section 106 Review	Hibbard, Don Hawaii Department of Land and Natural Resources	B099	6

KNMD OU5						
	Code#	Date	Title	Author	AR#	CD#
171	ABWM-212	30 Oct 95	EPA Letter to Base Concerning Meeting to Discuss Oahu Plantation Superfund Site	Opalski, Pam Cooper, David EPA Region IX	A038	9
172	KNMD-624	27 Oct 95	USGS Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol II	Meyer, William US Geological Survey	B098	6
173	KNMD-621	16 Oct 95	EPA Letter to Base Concerning Review of PA/SI, Draft FSP for Limited Field Investigation	Schutz, Michelle EPA Region IX	B095	6
174	KNMD-622	16 Oct 95	University of Hawaii Letter to Base Concerning PA/SI, Draft FSP for Limited Field Investigation, Vol I	Fujioka, Roger S, PhD University of Hawaii, Water Resources Research Center	B096	6
175	ABWM-208	07 Sep 95	HDLNR Letter to Base Concerning Comments on PA/SI, RI/FS	Wilson, Michael D Hawaii Department of Land and Natural Resources	A034	9
176	KNMD-620	04 Aug 95	USGS Letter to Base Concerning Final SAP, Final Work Plan, and Final Investigation Derived Waste Management for PA/SI	Meyer, William US Geological Survey	B093	3
177	KNMD-619	12 Jul 95	Base Letter to Distribution Concerning Comment Resolution for Risk Screening Evaluations	Strom, Randie A, LtCol 15 CES/CEV	B092	3
178	KNMD-762	Jul 95	SOW, Community Relations Program	HQ AFCEE	B352	6
179	ABWM-001	Jul 95	Community Relations Plan	EA Engineering, Science, and Technology, Inc.	A004	2
180	ABWM-153	Jul 95	PA/SI, Final Work Plan	EA Engineering, Science, and Technology, Inc.	A032	9
181	KNMD-616	16 Jun 95	HDOH Letter to Base Concerning Review of Risk Screening Evaluations	Olmsted, Gregory K Hawaii Department of Health	B088	3
182	KNMD-617	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B089	3
183	ABWM-207	16 Jun 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations Subset for RAB Review	Schutz, Michelle EPA Region IX	A031	9
184	ABWM-120	Jun 95	PA/SI, RI/FS, Final SAP	EA Engineering, Science, and Technology, Inc.	A023	9
185	ABWM-121	Jun 95	PA/SI, Final Waste Management Plan	15 CES/CEVR	A028	9
186	ABWM-163	05 May 95	Final Aerial Photograph Review Summary Report	Montgomery Watson	A020	9
187	KNMD-615	01 May 95	EPA Letter to Base Concerning Comments on Risk Screening Evaluations	Schutz, Michelle EPA Region IX	B087	3
188	ABWM-116	May 95	Final Risk Screening Evaluations Report, Vol I of IV	EA Engineering, Science, and Technology, Inc.	A024	9

KNMD OU5						
	Code#	Date	Title	Author	AR#	CD#
189	ABWM-117	May 95	Final Risk Screening Evaluations Report, Vol II of IV	EA Engineering, Science, and Technology, Inc.	A025	9
190	ABWM-118	May 95	Final Risk Screening Evaluations Report, Vol III of IV	EA Engineering, Science, and Technology, Inc.	A026	9
191	ABWM-119	May 95	Final Risk Screening Evaluations Report, Vol IV of IV	EA Engineering, Science, and Technology, Inc.	A027	9
192	ABWM-114	May 95	Final Risk Screening Evaluations Report, Subset for Review by RAB	EA Engineering, Science, and Technology, Inc.	A021	9
193	ABWM-115	May 95	Final Ranking of Sites by Potential for Risk	15 CES/CEVR	A022	9
194	KNMD-614	30 Mar 95	USFWS Letter to Base Concerning Comments on Draft Risk Screening Evaluations	Harper, Brooks US Fish and Wildlife Service	B086	3
195	KNMD-613	17 Mar 95	EPA Letter to Base Concerning Comments on PA/SI, Work Plan and SAP	Schutz, Michelle EPA Region IX	B085	3
196	ABWM-204	02 Mar 95	NOAA Letter to Base Concerning Comments on SAP and Work Plan	Naughton, John J National Oceanic and Atmospheric Administration	A019	9
197	KNMD-610	06 Jan 95	HDOH Letter to Base Concerning Review of Phase II, Stage 3, RI Draft Final Report, LF-01, LF-05, FT-07	Olmsted, Gregory K Hawaii Department of Health	B080	3
198	KNMD-248	Dec 94	Hazardous and Non-Hazardous Materials Waste Plan	Environmental Sciences - Pacific, Inc.	B079	3
199	ABWM-096	Dec 94	Final Management Action Plan, Executive Summary	EA Engineering, Science, and Technology, Inc.	A003	2
200	ABWM-203	21 Oct 94	USFWS Letter to Base Concerning Endangered and Threatened Species, Federally Listed, Proposed and Candidate	Harper, Brooks US Fish and Wildlife Service	A018	9
201	ABWM-182	Oct 94	PA/SI, RI/FS, Final HSP	EA Engineering, Science, and Technology, Inc.	A017	9
202	ABWM-113	Sep 94	PA/SI, Draft Work Plan	EA Engineering, Science, and Technology, Inc.	A016	9
203	KNMD-065	Aug 94	Phase I, Environmental Baseline Survey for Proposed Land Transfer of Runway 8L-26R	USACE - Pacific Ocean	B074	6
204	ABWM-064	Jul 94	Draft Site Characterization Report, Risk Screening	Engineering Sciences, Inc.	A013	9
205	ABWM-103	Jul 94	Draft SAP	EA Engineering, Science, and Technology, Inc.	A014	9
206	ABWM-104	Jul 94	Draft QAPP	EA Engineering, Science, and Technology, Inc.	A015	9
207	ABWM-181	04 Mar 94	Final Corrective Action Plan, Thermal Adsorption of Contaminated Soil	15 CES/CEVR	A012	9
208	KNMD-158	Mar 94	Round One, LTM Report, Vol I of VI, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B065	3
209	KNMD-057	Mar 94	Round One, LTM Report, Vol II of VI, Appendix D, Data Packages, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B066	3

KNMD OU5						
	Code#	Date	Title	Author	AR#	CD#
210	KNMD-058	Mar 94	Round One, LTM Report, Vol III of VI, Appendix D, Data Packages, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B067	7
211	KNMD-059	Mar 94	Round One, LTM Report, Vol IV of VI, Appendix D, Data Packages, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B068	3
212	KNMD-060	Mar 94	Round One, LTM Report, Vol V of VI, Appendix D, Data Packages, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B069	3
213	KNMD-061	Mar 94	Round One, LTM Report, Vol VI of VI, Appendix D, Data Packages, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B070	3
214	KNMD-102	Jan 94	RI, Phase II, Stage 3, Draft Report, Comment Resolution Document, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B064	3
215	ABWM-085	Dec 93	Final Management Action Plan, Executive Summary	Engineering-Sciences, Inc.	A002	2
216	KNMD-046	Sep 93	RI/FS, Addendum, Stage 3, LTM Work Plan	Engineering-Sciences, Inc.	B063	3
217	ABWM-201	Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	A006	2
218	KNMD-045	Aug 93	Bioventing Pilot Test Work Plan, Draft Interim Pilot Test Results Report, SS-01, LF-14, SS-15	Engineering-Sciences, Inc.	B062	3
219	ABWM-044	Jun 93	PA, Draft Report, UST	Engineering Sciences, Inc.	A011	9
220	KNMD-035	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol I of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B053 Part 1	2
221	KNMD-036	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol II of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B054 Part 1	3
222	KNMD-037	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol III of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B055 Part 1	3
223	KNMD-038	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol IV of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B056 Part 1	3
224	KNMD-039	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol V of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B057 Part 1	3
225	KNMD-040	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol VI of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B058 Part 1	3
226	KNMD-041	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol VII of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B059	3
227	KNMD-042	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol VIII of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B060	3
228	KNMD-043	Apr 93	RI, Phase II, Stage 3, ITIR, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B061	3
229	KNMD-035	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol I of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B053 Part 2	2
230	KNMD-036	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol II of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B054 Part 2	3
231	KNMD-037	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol III of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B055 Part 2	3

KNMD OU5						
	Code#	Date	Title	Author	AR#	CD#
232	KNMD-038	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol IV of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B056 Part 2	3
233	KNMD-039	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol V of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B057 Part 2	3
234	KNMD-040	Apr 93	RI, Phase II, Stage 3, ITIR, Appendix A, Vol VI of VIII, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B058 Part 2	3
235	ABWM-034	Feb 93	PA, Final Work Plan, UST	Engineering Sciences, Inc.	A010	9
236	KNMD-029	Jul 92	RI/FS, Stage 3, HSP, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B047	2
237	KNMD-030	Jul 92	RI/FS, Stage 3, Final SAP, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B048	2
238	KNMD-031	Jul 92	RI/FS, Stage 3, Final Work Plan, LF-01, LF-05, FT-07	Engineering-Sciences, Inc.	B049	2
239	KNMD-157	20 Dec 91	RI/FS, Stage 3 Work Plan	Engineering-Sciences, Inc.	B043	2
240	KNMD-025	Dec 91	Response to Comments on RI/FS, Work Plan and SAP	Engineering-Sciences, Inc.	B042	2
241	KNMD-607	26 Nov 91	PA, Screening Report, Fort Kamehameha Military Reservation	SAF/MIIR	B041	2
242	KNMD-024	26 Sep 91	PA/SI, Review Report	University of Hawaii Environmental Center	B040	2
243	KNMD-083	Sep 91	NFRAP, Final Decision Document, Landfills and Sewer	Chem-Nuclear Geotech, Inc.	B039	2
244	ABWM-152	Sep 91	Final Preliminary Evaluation Report, UST Tightness Testing Program	Galson, Corp.	A009	9
245	KNMD-012	Mar 91	ITIR for Analytical Data	Environmental Science and Engineering, Inc.	B026	2
246	KNMD-010	13 Aug 90	Stage 2, Final Technical Report, Vol I of II	Harding Lawson Associates	B024	2
247	KNMD-011	13 Aug 90	Stage 2, Final Technical Report, Vol II of II, Appendices A-L	Harding Lawson Associates	B025	2
248	KNMD-006	22 Jan 88	Stage 2, QAPP	Harding Lawson Associates	B012	2
249	KNMD-007	22 Jan 88	Stage 2, Work Plan	Harding Lawson Associates	B013	2
250	KNMD-004	Jan 87	Phase II, Stage 1, Confirmation/Quantification Report, Jan-Sep 85	Dames and Moore	B007	2
251	KNMD-001	Jul 83	Phase I, Records Search Report	Sam O Hirota, Inc.	B002	2

Appendix C

Decision Document Summaries

Declaration Pages of Action Memoranda

Appendix D

No Further Response Action Planned (NFRAP) Summaries

Declaration Pages of NFRAPs

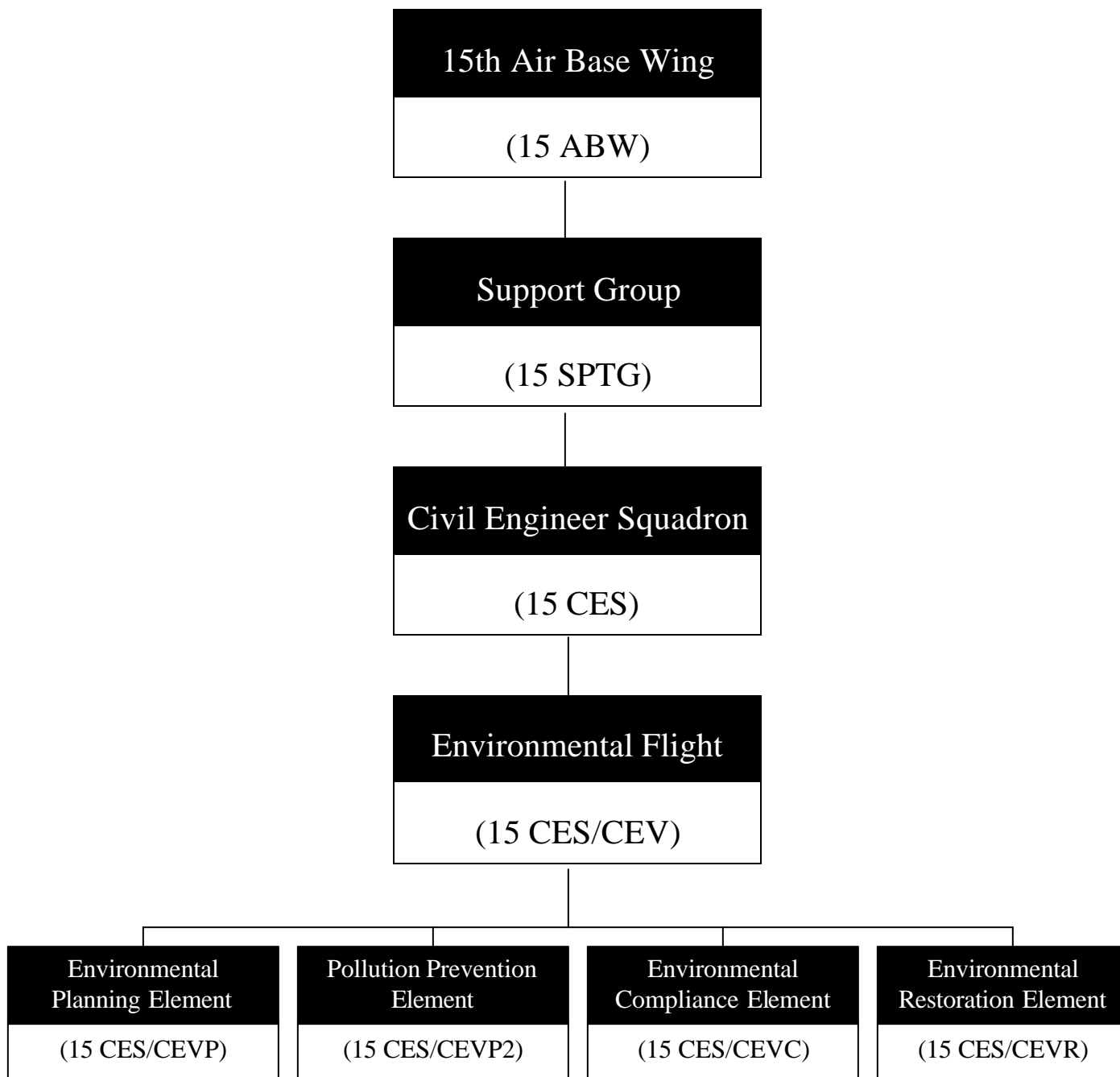
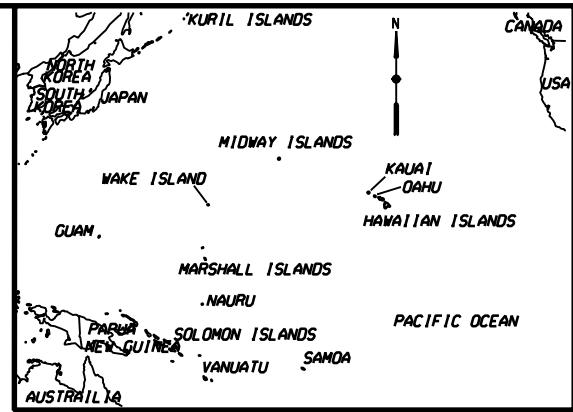
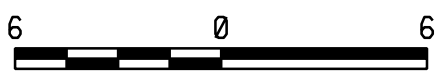


FIGURE 1-1 15th AIR BASE WING ORGANIZATION CHART



LEGEND:
 - - - - - ROADWAY



APPROXIMATE SCALE (MILES)

FILE: HICKAM\HIC_OAHU.DGN

FIGURE 1-2 LOCATION OF HICKAM AIR FORCE BASE ON OAHU, HAWAII

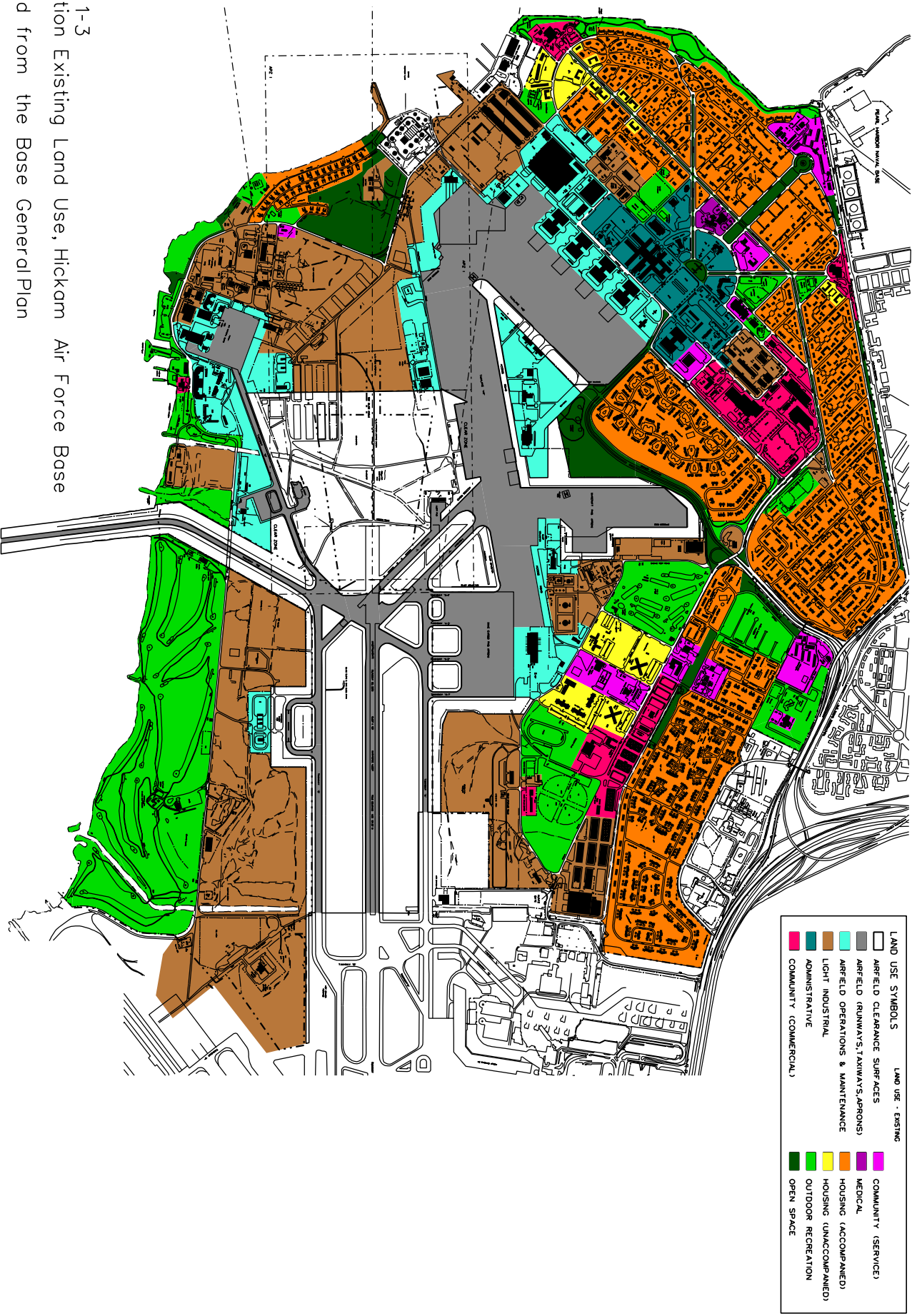


Figure 1-3
Installation Existing Land Use, Hickam Air Force Base
Adopted from the Base General Plan

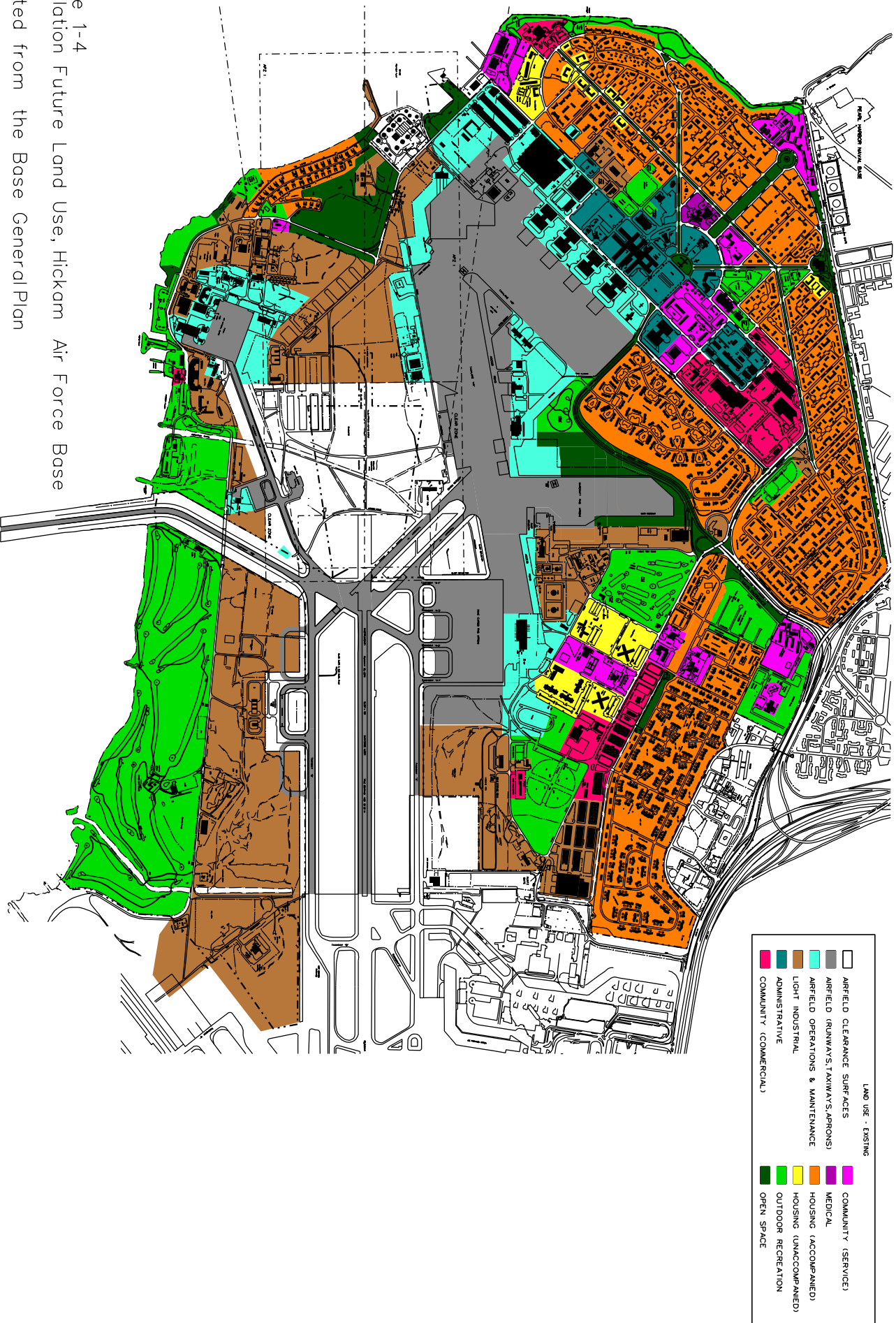


Figure 1-4
 Installation Future Land Use, Hickam Air Force Base
 Adopted from the Base General Plan

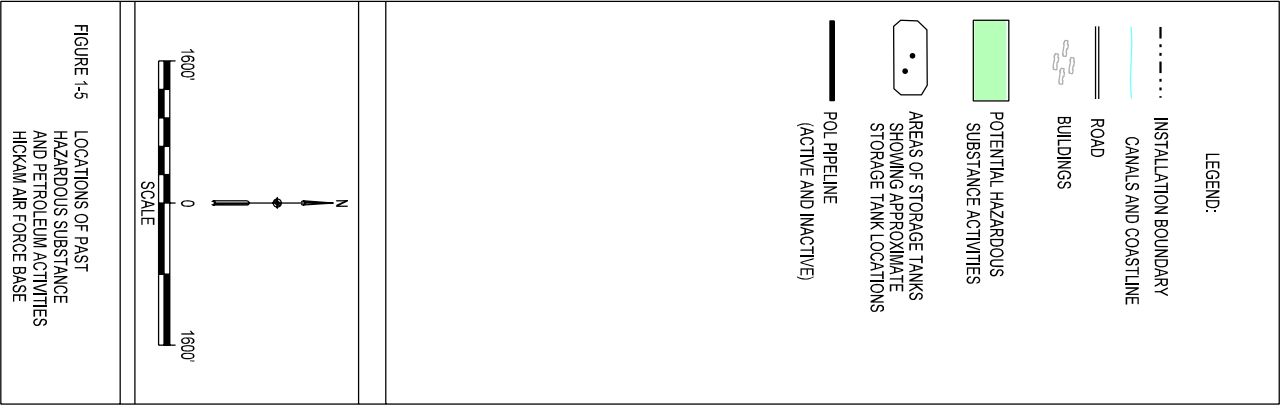
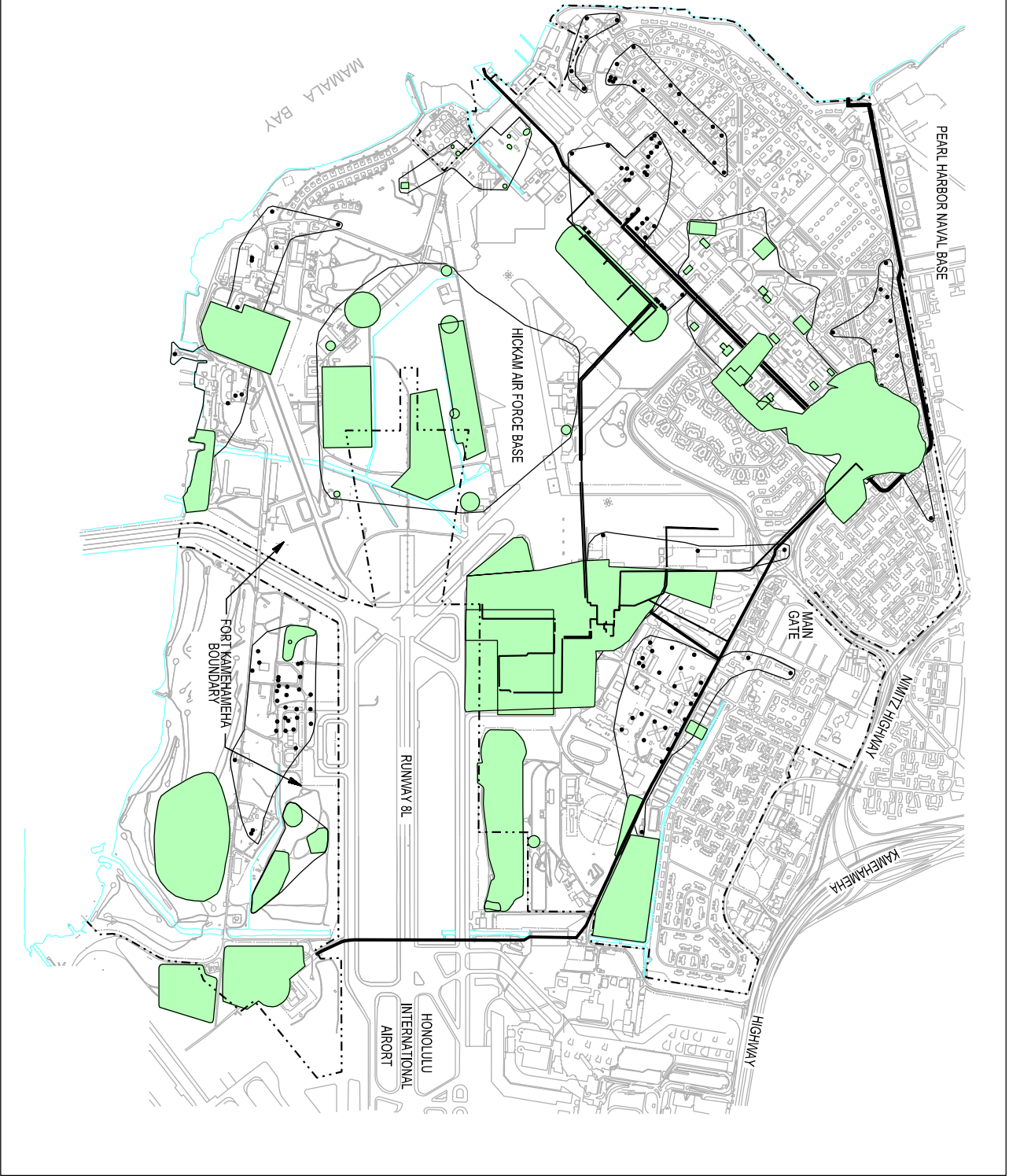
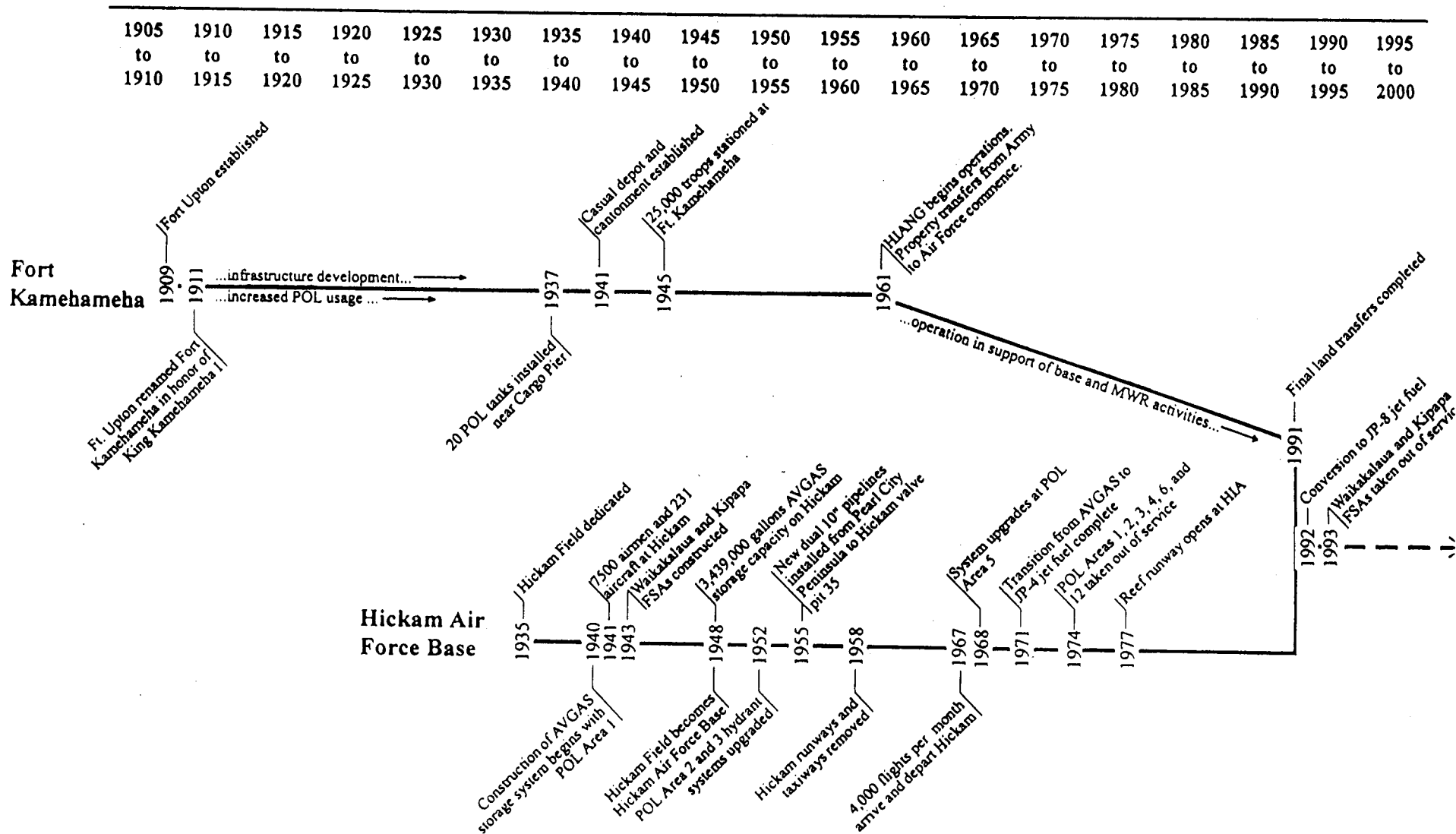
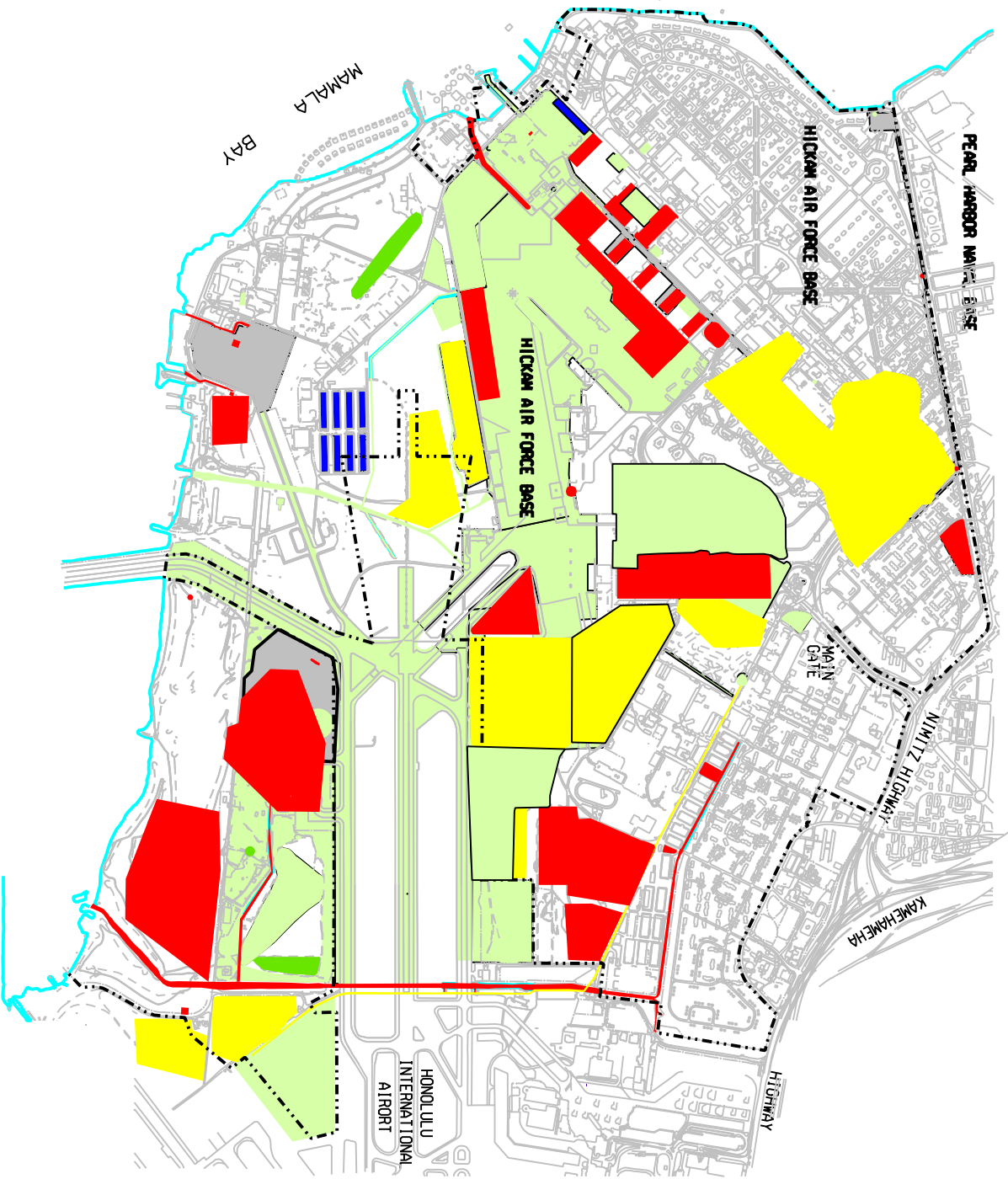




Figure 1-6
Historical Timeline
showing
Significant Milestones and Changes in POL Distribution and Storage Systems
Fort Kamehameha and Hickam Air Force Base





LEGEND:

- INSTALLATION BOUNDARY
- CANALS AND COASTLINE
- == ROAD
- == BUILDINGS

ENVIRONMENTAL CONDITIONS OF PROPERTY

CATEGORIES

- Areas of No Storage (Cat. 1)
- Areas of Only Storage (Cat. 2)
- Areas of Storage & Insig. Release (Cat. 3)
- Areas of Release w/ Remedial Actions Taken (Cat. 4)
- Areas of Release w/ Remedial Actions Underway (Cat. 5)
- Areas of Release, Response Actions Pending (Cat. 6)
- Areas Unevaluated to Date (Cat. 7)

NOTE: FOR INDIVIDUAL LOT LOCATIONS SEE FIGURE 3-2
 THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. IT
 IS NOT TO BE USED FOR ANY OTHER PURPOSE. THE
 CONDITION OF PROPERTY.

CONDITION OF PROPERTY BOUNDARIES ARE APPROXIMATED

NEW BOUNDARY AFTER RUNWAY 8, LAND TRANSFER IS NOT SHOWN

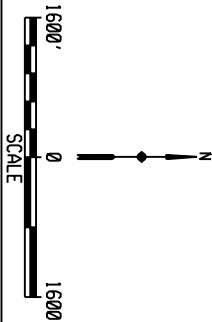
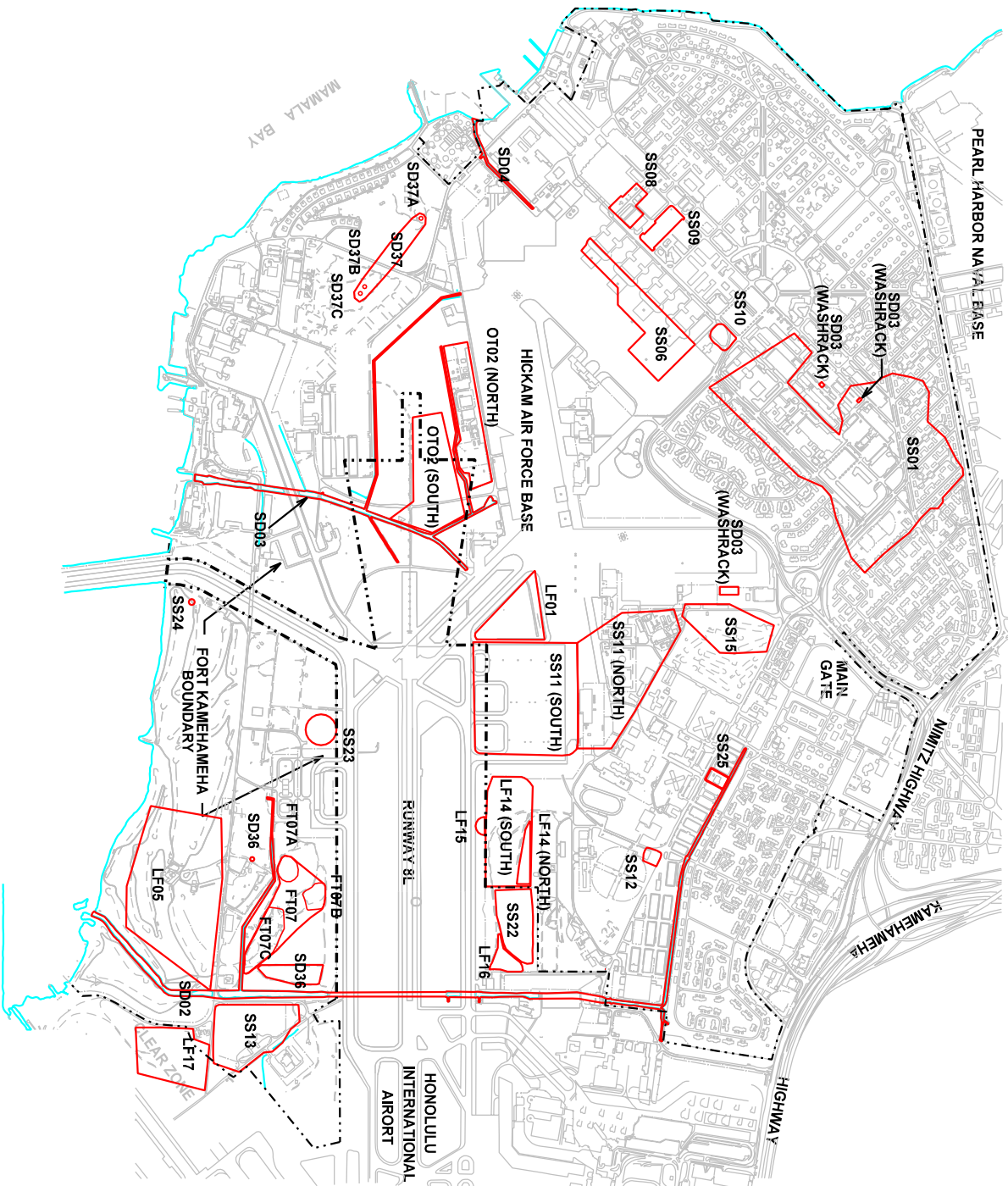


FIGURE 2-1 ENVIRONMENTAL CONDITION
 OF PROPERTY
 HICKAM AIR FORCE BASE



LEGEND:

- INSTALLATION BOUNDARY
- CANALS AND COASTLINE
- == ROAD
- == BUILDINGS

DESIGNATION OF INSTALLATION RESTORATION PROGRAM (IRP) SITES

- IRP SITES (EXCEPT STORAGE TANKS AND PIPELINES)
- FT07 - FIRE TRAINING AREA
- LF01 - LANDFILL #1
- LF05 - TRI-SERVICES LANDFILL
- LF14 - INACTIVE LANDFILL #2
- LF15 - INACTIVE LANDFILL #3
- LF16 - INACTIVE LANDFILL #4
- LF17 - INACTIVE LANDFILL #6
- OT02 - AEC SITE
- SD02 - MANUWAI CANAL
- SD03 - KUMUMAU CANAL & WASHRACKS
- SD04 - MOTOR POOL DITCH
- SD06 - ABANDONED BARRELS
- SD07 - FORT KAMEHAMEHA DRUM SITE
- SS01 - SUB-SURFACE FUEL RECOVERY
- SS06 - FUEL LEAK AREA 9 (AREA B)
- SS08 - FUEL LEAK AREA 10 (AREA C)
- SS09 - FUEL LEAK AREA 11 (AREA D)
- SS10 - FUEL LEAK AREA 12 (AREA F)
- SS11 - FUEL LEAK AREA 16 (AREA L)
- SS12 - FUEL LEAK AREA 17 (AREA D)
- SS13 - FUEL LEAK AREA 18 (AREA P.O)
- SS15 - FUEL LEAK AREA 15 (AREA K)
- SS22 - HNL INT'L AIRPORT SITE
- SS23 - EOD AREA
- SS24 - REEF TAXIWAY
- SS25 - HICKAM VILLAGE SHOPPETTE
- SITE SD19 IS NOT SHOWN DUE TO LARGE SIZE
- SITE SS18 IS NOT SHOWN AS IT WAS REMOVED FROM RESTORATION PROGRAM.

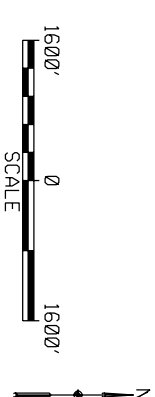
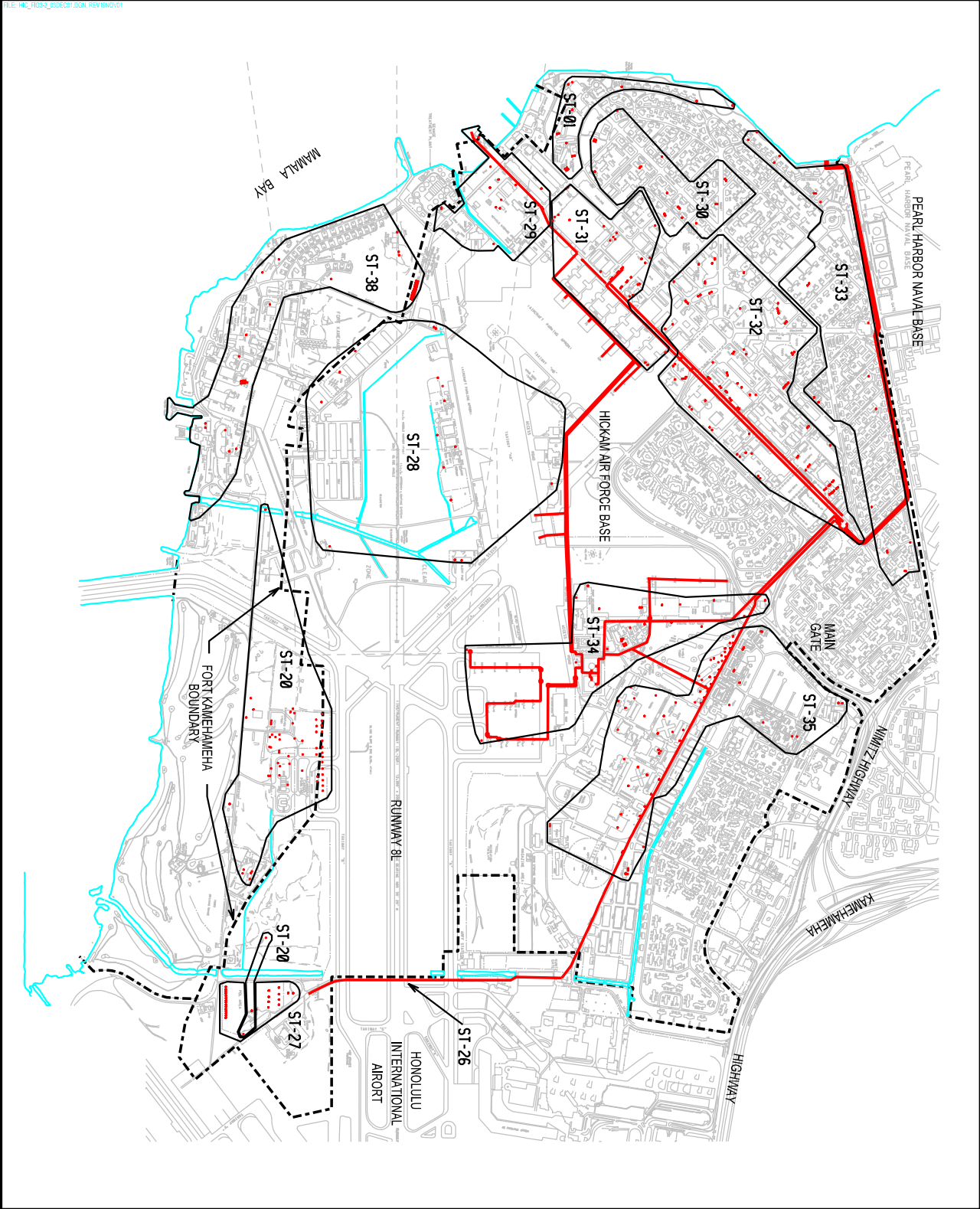


FIGURE 3-1 MAP OF IRP SITES (EXCEPT STORAGE TANKS AND PIPELINES) HICKAM AIR FORCE BASE



LEGEND:

--- INSTALLATION BOUNDARY
--- CANALS AND COASTLINE

== ROAD

== BUILDINGS

DESIGNATION OF INSTALLATION
RESTORATION PROGRAM (IRP) SITES

STORAGE TANKS
AND PIPELINES

- ST01 - OFFICERS CLUB USTs
- ST20 - EOD AREA USTs
- ST27 - JOHN RODGERS TANK FARM
- ST28 - HICKAM RUNWAY USTs
- ST29 - BISHOP POINT USTs
- ST30 - SIGNER RESIDENTIAL USTs
- ST31 - HANGER AVENUE USTs
- ST32 - WICKERS AVENUE USTs
- ST33 - FOX BOULEVARD USTs
- ST34 - POL AREA 11 TANK FARM
- ST35 - KUNTZ AVENUE USTs
- ST36 - FORT KAMEHAMEHA USTs

DISCLAIMER: SITE LOCATIONS ARE
APPROXIMATED

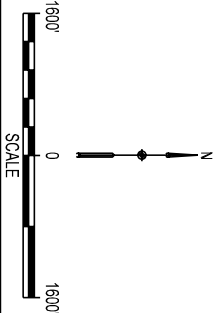


FIGURE 3-2
MAP OF STORAGE
TANKS AND PIPELINES
HICKAM AIR FORCE BASE

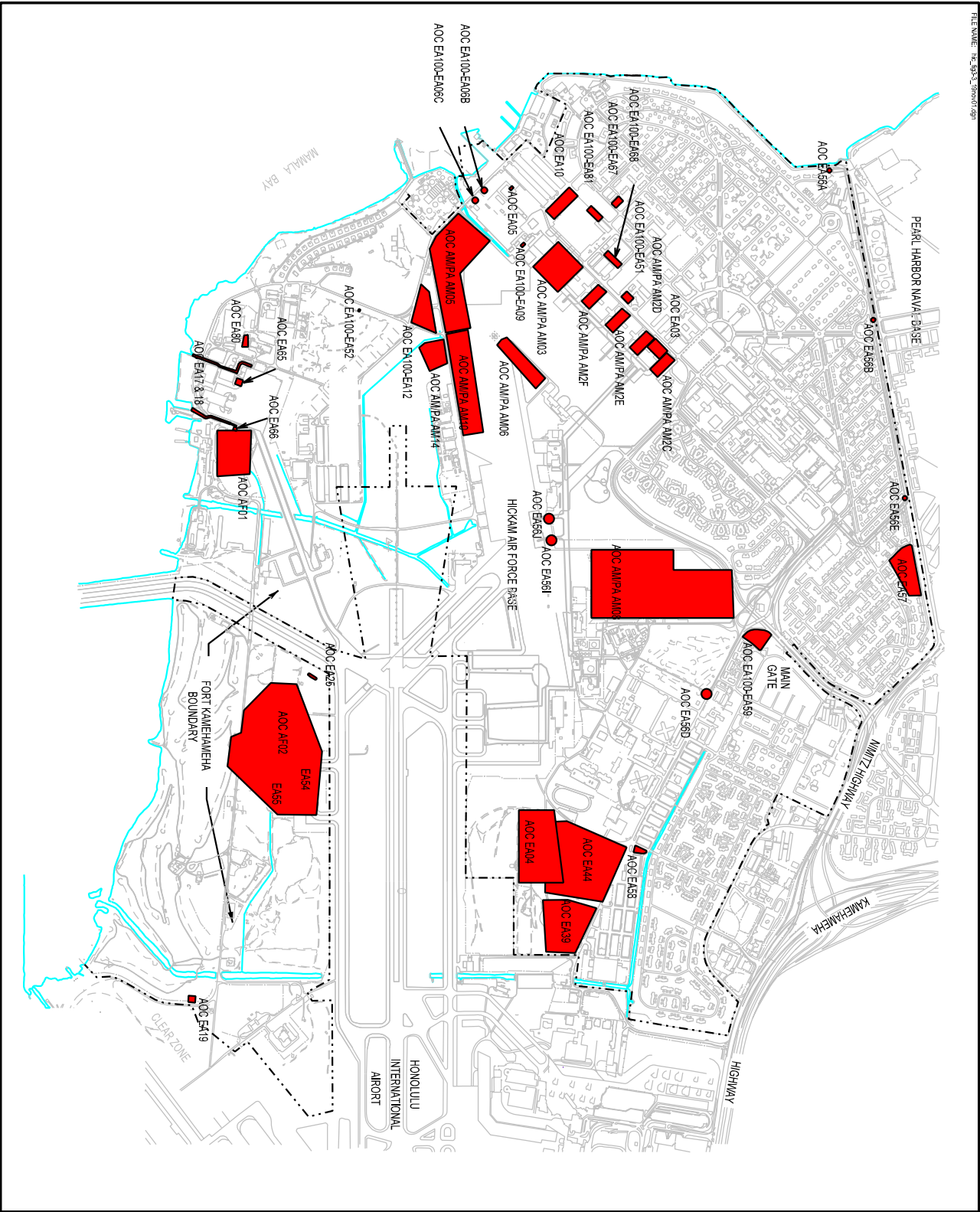
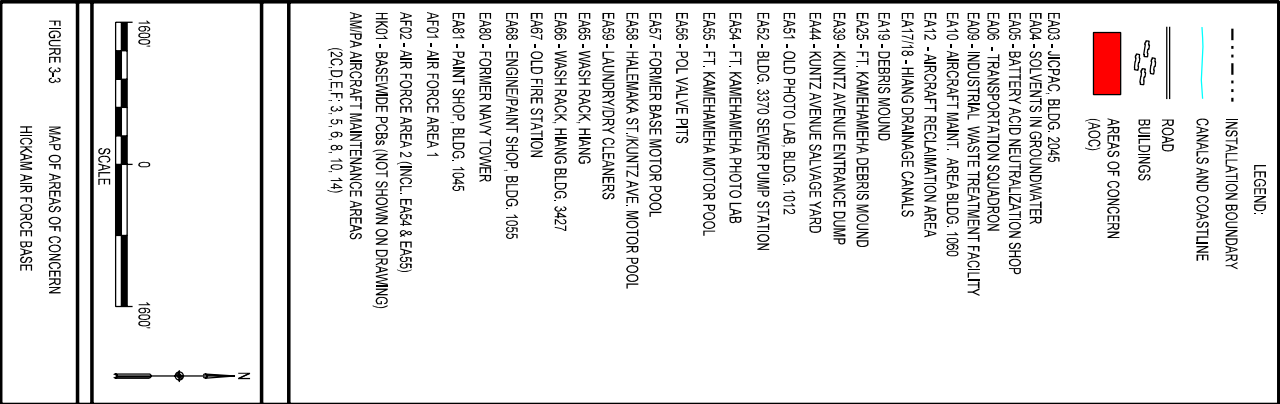
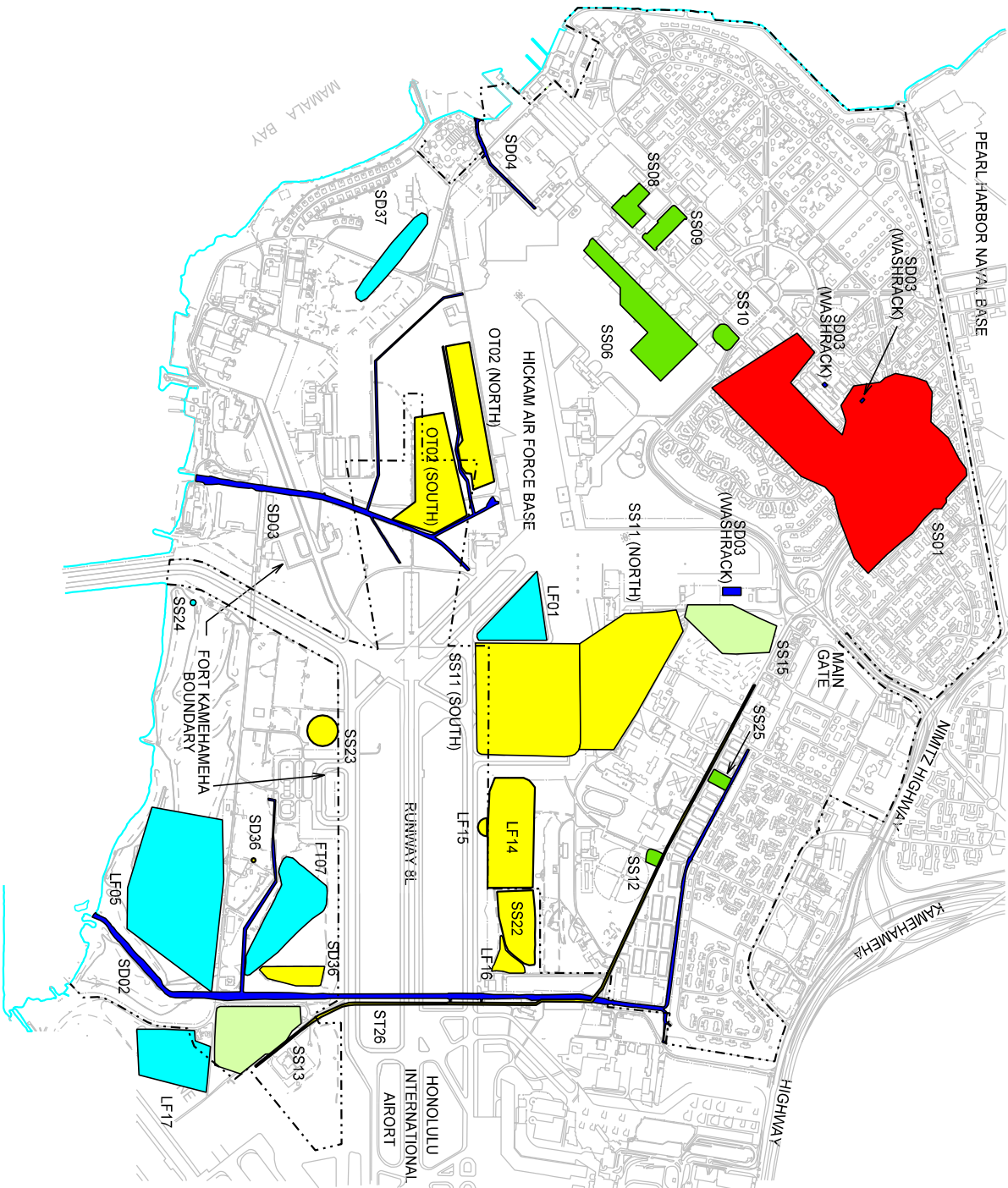


FIGURE 3-3 MAP OF AREAS OF CONCERN
HICKAM AIR FORCE BASE





LEGEND:

INSTALLATION BOUNDARY

CANALS AND COASTLINE

ROAD

BUILDINGS

OPERABLE UNIT DESIGNATIONS
(EXCEPT STORAGE TANKS AND PIPELINES)

OPERABLE UNIT 1

OPERABLE UNIT 3A

OPERABLE UNIT 3B

OPERABLE UNIT 4

OPERABLE UNIT 5

OPERABLE UNIT 6

OU 1

SD02 - MAINWATER CANAL

SD04 - KUMAMAU CANAL

SD04 - MOTOR POOL DITCH

OU 3A

SS13 - FUEL LEAK AREA 18 (AREA F O)

SS15 - FUEL LEAK AREA 15 (AREA K)

SS16 - FUEL LEAK AREA 9 (AREA B)

SS09 - FUEL LEAK AREA 10 (AREA C)

SS09 - FUEL LEAK AREA 11 (AREA D)

SS10 - FUEL LEAK AREA 12 (AREA F)

SS12 - FUEL LEAK AREA 17 (AREA O)

SS25 - HICKAM VILLAGE SHOPPETTE

SS27 - SUBSURFACE FUEL RECOVERY

OU 3

LF01 - LANDFILL #1

LF06 - TR-SERVICES LANDFILL

LF07 - FIRE TRAINING AREA

LF17 - INACTIVE LANDFILL #6

SD19 - SANITARY SEWER SYSTEM (NOT SHOWN DUE TO LARGE SIZE)

SS24 - REEF TANKWAY

SS27 - FORT KAMEHAMEHA DRUM SITE

OU 6

OT02 - AEC AREA

SS11 - FUEL LEAK AREA 16 (AREA I)

LF14 - INACTIVE LANDFILL #2

LF15 - INACTIVE LANDFILL #3

LF16 - INACTIVE LANDFILL #4

SS23 - HNL INTL AIRPORT SITE

SS23 - EOD AREA CONTAMINATED SOIL

ST26 - KUNITZ PIPELINE

SD26 - ABANDONED BARRIERS

1600'

0

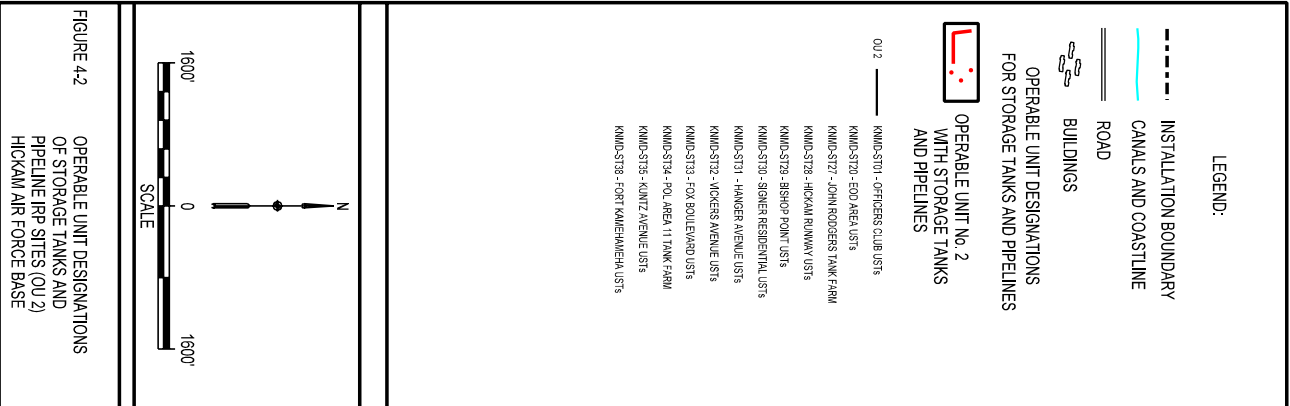
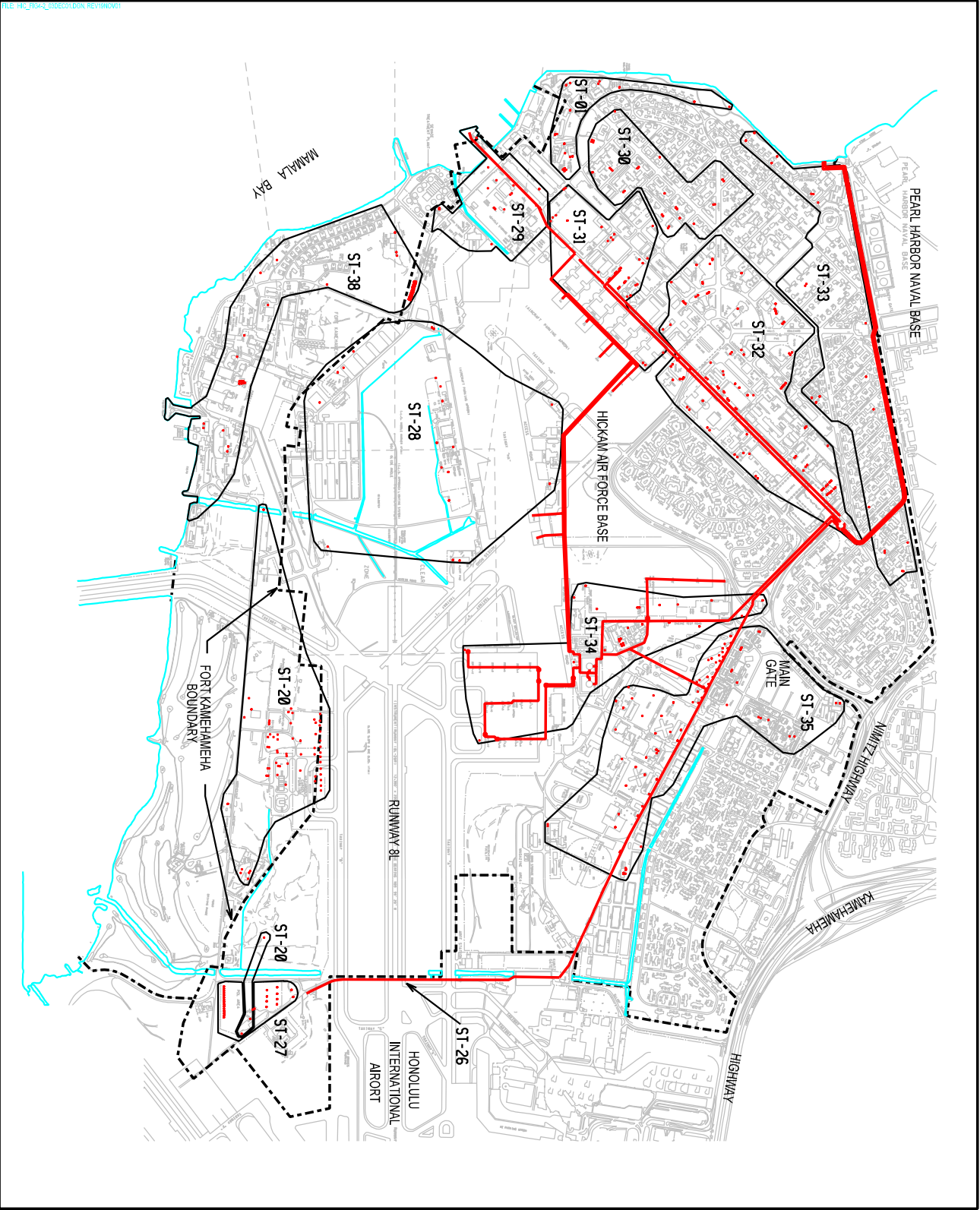
1600'

SCALE

N

↑

FIGURE 4-1
OPERABLE UNIT DESIGNATIONS
OF IRP SITES (EXCEPT STORAGE
TANKS AND PIPELINES)
HICKAM AIR FORCE BASE



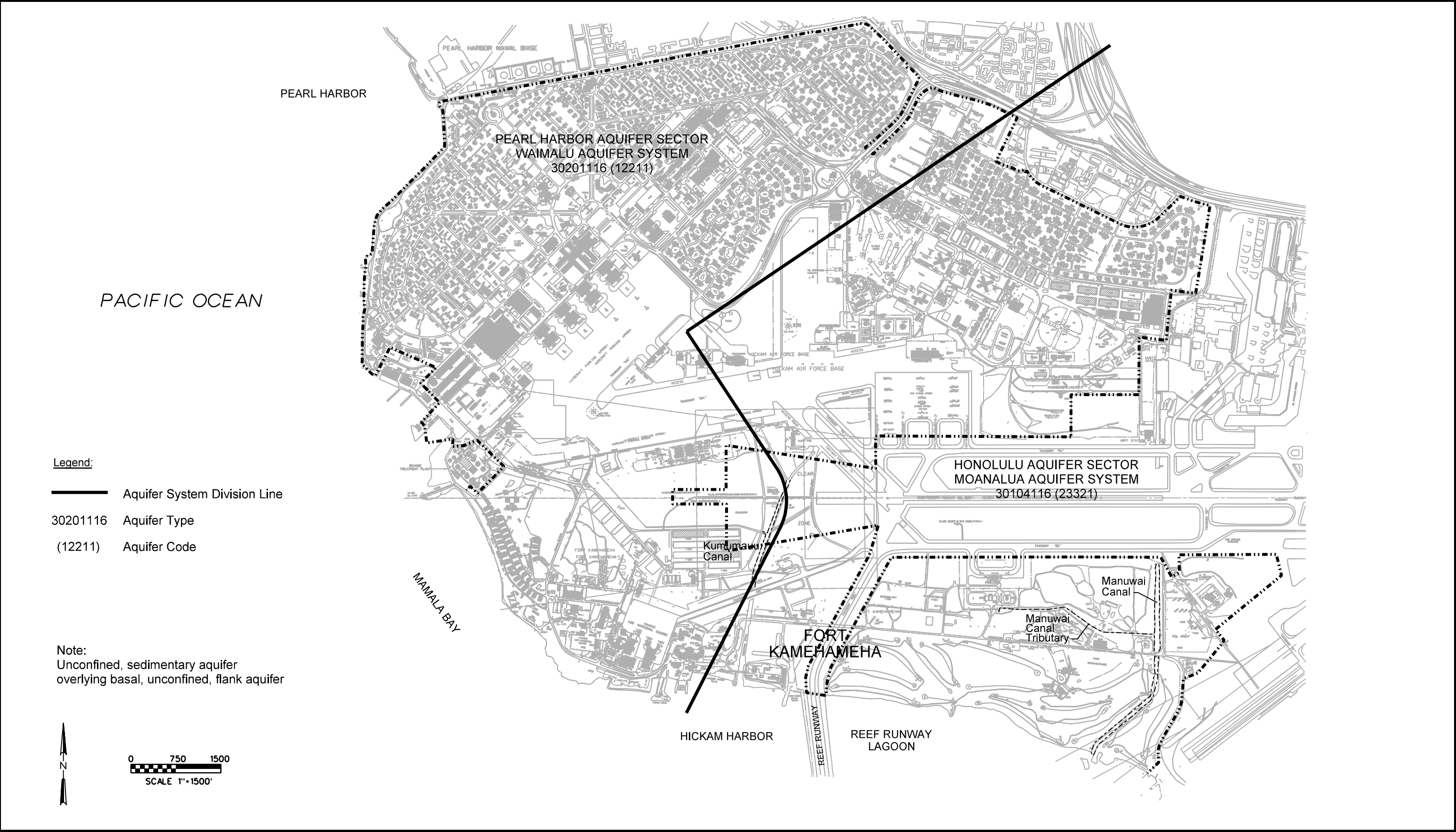
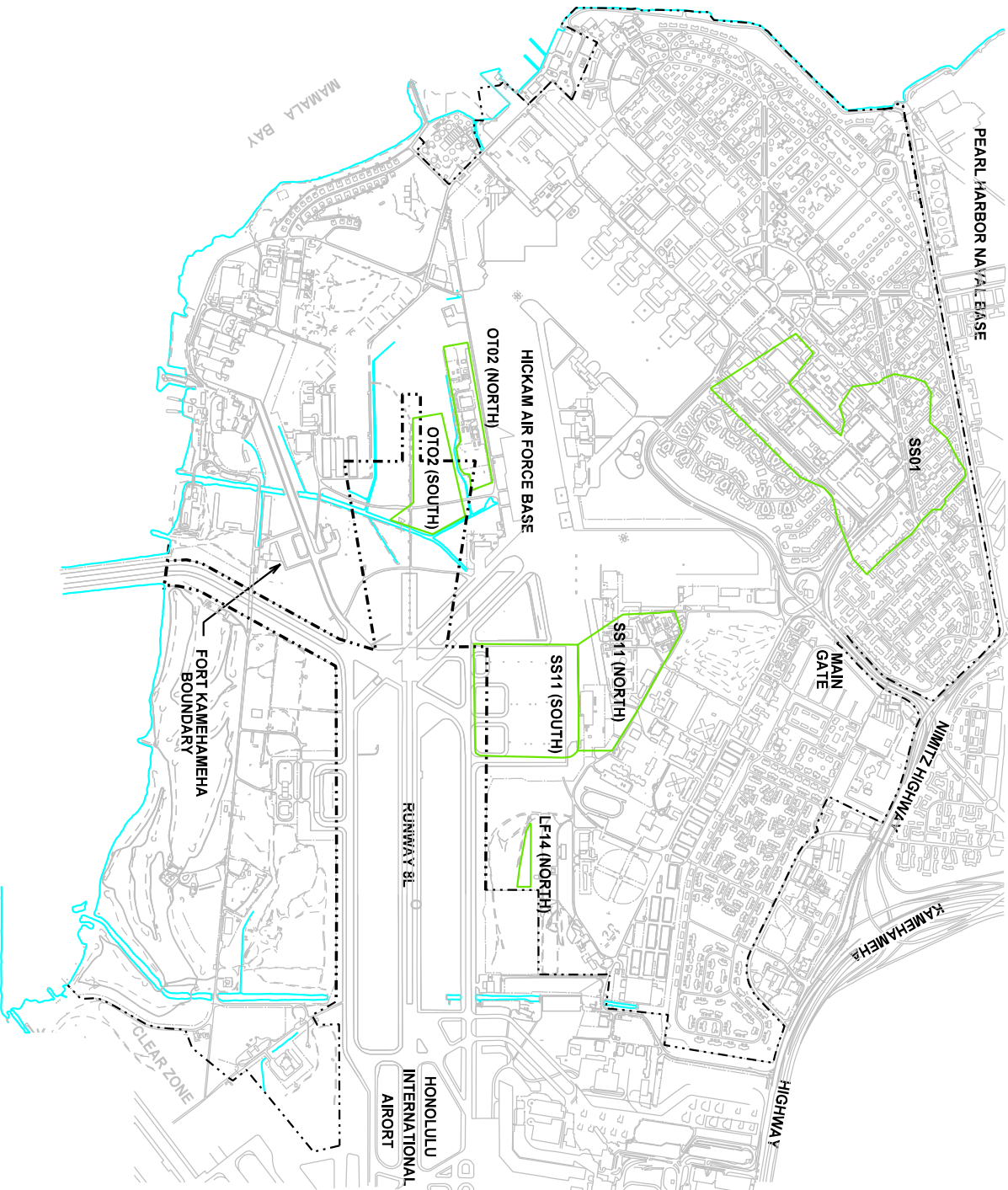


Figure 4-3
Location of Aquifer Zones at Hickam Air Force Base



LEGEND:

--- INSTALLATION BOUNDARY
 CANALS AND COASTLINE

ROAD

BUILDINGS

DESIGNATION OF INSTALLATION
 RESTORATION PROGRAM (IRP) SITES

IRP SITES WITH INSTITUTIONAL
 CONTROLS IN PLACE

LF14 - INACTIVE LANDFILL #2

OT02 - AEC SITE

SS01 - SUB-SURFACE FUEL RECOVERY

SS11 - FUEL LEAK AREA 16 (AREA L)



FIGURE 6-1 LOCATIONS OF INSTITUTIONAL
 CONTROLS
 HICKAM AIR FORCE BASE